CITY & COUNTY OF BATH.

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1899.

THIRTY-FOURTH

ANNUAL REPORT

TO THE

BATH URBAN SANITARY AUTHORITY,

BY THE

MEDICAL OFFICER OF HEALTH.

ΆΡΙΣΤΟΝ ΜΈΝ ΥΔΩΡ.

BATH:
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BATH URBAN SANITARY AUTHORITY.

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SUMMARY.

CITY & COUNTY BOROUGH OF BATH.

HEALTH RESORT & CHIEF TOWN OF SOMERSETSHIRE.

Situation—Latitude 51° 23′ N ; Longitude 2° 21′ W.

Elevation—Varies from 60 feet above sea level on the lower banks of the river to about 550 on either side, the hills rising to about 750 feet not far from the boundaries.

Geological Formation—Oolitic clays, limestones and sands.

Area of the County Borough—3,382 statute acres.

Population—1891 Census, 51,844 ; 1899, Estimated 52,600.

Density of Population—Per acre, 15·3 ; per house, 5·5.

Rateable Value—1891, £298,062.

Assessable Value, 1899, £302,522.

Number of Inhabited Houses—Census 1891, 8,933 ; Rate Book, 1899, 9558.

Rainfall—1899, 29·29 inches. Average, 33 years, 1866—98. 30·76 inches.

Birth-rate—19·39 per 1,000 annually.

Comparative Mortality Figure, 1899, 942.

Average Death-rate, 1889-98, 18·28 per 1,000 annually.

Crude Death-rate, 1899, 18·27 per 1,000 annually.

Recorded Death-rate reduced to Standard for Age and Sex Distribution, 17·2 ; corrected for Non-Residents 15·83.

Death-rate from 7 principal Zymotic diseases, 1·20 per 1,000 annually.

Deaths under 1 year, 134 or 2·57 per 1,000 living of all ages.

Infantile Mortality—131 per 1,000 Births.

Deaths under 5 years of age, 186, or 3·53 per 1,000 living of all ages.

Young Child Mortality—38·2 per 1,000 living under 5 (1891).

Deaths over 60 years of age, 436, or 8·29 per 1,000 of all ages.

Senile Mortality—72.7 per 1,000 living over 60 years of age.

To the Mayor, Aldermen and Councillors of the Bath Urban Sanitary Authority.

GENTLEMEN,—

I have the honour of submitting to you the Thirty-fourth Annual Report of the Sanitary Condition of the City of Bath.

In the Reports for 1896, 1897 and 1898, I was able to announce each year a record death-rate, the death-rate for 1898 being 16·3, which, compared with the death-rate of England and Wales as 1,000 after correcting to standard age population, gave 874 as the Comparative Mortality Figure for Bath For 1899 the uncorrected death-rate is 18·3, and the Comparative Mortality Figure 942. I shall endeavour to show the causes of the increase, how we stand in comparison with other districts where similar causes have been acting, and to what extent the increase has depended upon causes capable of removal or mitigation.

For convenience, my remarks are arranged under various headings, and I have followed the instructions of the Local Government Board as far as I am able, in considering the conditions affecting health with reference to the past and future, as well as to this particular year.

Site, Soil and Elevation of Bath.

Bath is situated in N. Lat. 51° 21-24′ and W. Long. 2° 20-23′, and is built chiefly upon the Lias and Lias Clays, but the Upper Lias or Midford Sands, Inferior and Great Oolites, and the Fuller's Earth lying between them, are well represented in the higher portions of the city, while Mammal Drift Gravel and Alluvium form the subsoil near the river, but the deposit of gravel is more extensive than the alluvium.

Bath being in a bend of the valley of the Avon has sloping ground with every possible aspect, but the slopes facing South and South-West have been most built upon. The elevation of the city varies from 60 feet on the banks of the river, to about 550 on either side, and half-a-mile outside the Northern boundary Lansdown rises to about 750 feet above the mean sea level.

I have been unable to find any estimate of the mean elevation of the city, and have therefore made an estimate which is based upon the assumption that the mean elevation of the surface between two contour lines of the Ordnance Survey is the mean value of those lines. In some situations this must obviously be an incorrect basis for a calculation, as for example in the vicinity of Beechen Cliff, but I know no better method, and for sub-districts the results obtained are probably very near the truth.

The surfaces were measured by the following process, which is accurate to about 1 per cent. :— The boundaries and contour lines were traced upon paper of ascertained equality as regards surface and weight. The boundary line of the city was cut through and the paper weighed. The area of the city being 3,382 acres, the value of an acre, as represented on paper, in terms of unit weight, was calculated. The paper was then divided so as to represent the various civil parishes ; each piece of paper was weighed, and from the weight the area was calculated.

The results compared fairly with the Census returns ; thus, the figures for the three sub-districts were as follows :—Walcot, 943 instead of 939 ; Lyn-Widcombe, 1,841 instead of 1,849 ; and Bathwick, 604 instead of 594 acres. The values of the surfaces between the contour lines in each parish were afterwards determined in the same way, their proportions to the whole parish ascertained and stated as decimal fractions, with the area of the parish as unity. The sum of the products of these fractions into the mean levels of the surfaces they represented gave the mean elevation of the parish.

My first estimate gave a mean elevation of 283 feet above mean sea level for the city of Bath. A second estimate with another set of tracings weighed in an accurate chemical balance gave the mean elevation as 285 feet. The following are my estimates for the various civil parishes :—St. James, 75 ; St. Peter and St. Paul, 85 ; St. Michael, 100 ; Walcot, 210 ; Bathwick, 229 ; Lyncombe 331 ; Widcombe, 372 feet above the mean sea level of Liverpool.

According to the Return of the Registrar-General, the mean elevation of London is 60 feet above the sea level, or less than three feet above the level of Pulteney Weir, Bath. The following table gives the area in acres between various contour lines for Bath and its sub-districts, the proportion to total area, and the mean elevation :—

ELEVATION OF BATH AND SUB-DISTRICTS ABOVE MEAN SEA LEVEL.

Elevation above Mean Sea Level.	Area in Acres.				Percentage to Total Area and Mean Elevation.			
	Walcot	Lyn-Wid.	Bathwick	Bath	Walcot	Lyn-Wid.	Bathwick	Bath
60 to 100 feet ...	280	129	169	578	29·85	6·95	28 45	17·15
100 to 200 feet ...	307	314	132	753	32·65	16·94	22·19	22·29
200 to 300 feet ...	156	309	118	583	16·60	16·73	19·96	17 30
300 to 400 feet ...	111	249	79	439	11·83	13·47	12 25	12 89
400 to 500 feet ...	72	212	62	346	7·69	11·46	10·43	10·23
Above 500 feet ...	13	636	34	683	1·38	34·45	5·72	20·14
Total Acreage ...	939	1849	594	3382	M.E. 197	350	229	285

The Population.

In last year's Report full particulars were given concerning the population of Bath as enumerated at the Census of 1891, and as calculated by various methods for the present time. I consider the estimate made in 1896 rather over-stated the population, and have therefore not added to those figures, but expect them to represent the population of Bath when the Census is taken in 1901. For calculating death-rates, I assume the population to be 52,600, of whom about 1,000 are under one year of age, and 6,000 over 60 years of age. The figures given for children under one year of age represent approximately the number of children born during the year, and not the number living at any one day, these would not exceed 900.

The age and sex constitution of the population of Bath is such that the crude death-rate must be multiplied by the factor 0·9432 before it can be fairly compared with the English rate, or the corrected rate of any large town. The factors for correction for the sub-districts are as follows:—Walcot, 0·9233; Lyn-Wid, 0·9287; Bathwick, 0·8783. These factors correct the death-rates for the larger number of old people, and the smaller number of young people in the various populations as compared with the English standard. The Zymotic Death-rate measures the number of deaths from diseases peculiar to young children per 1,000 of all ages, and it ought to be corrected by a special factor proportionate to the number of young children per 1,000 of all ages. For deaths among children under 5 years of age, the factor for Bath is 1·38. A Zymotic Death-rate of 1·2 for Bath has about the same significance as a Zymotic Death-rate of 1·66 for England and Wales. For children under the age of 15 the factor would be 1·275.

The Distribution of the Population.

Civil Parishes.	Area, Acres	Population 1891	Persons per Acre	Houses, 1891 Let.	Void.	Persons per House
Walcot	841	24899	30	4365	345	5·7
St. Michael's ...	26	2035	78	342	88	6·0
SS. Peter & Paul...	19	1668	88	234	82	7·1
St. James's ...	53	4758	90	614	52	7·7
Bathwick ...	594	4714	8	797	66	5·9
Lyn-Widcombe ...	1849	13770	7	2581	161	5·3
Bath ...	3382	51844	15	8933	795	5·8

Inhabited Houses, 1891, 1897, 1898 and 1899.

Other Buildings, Occupied and Void, and Assessable Value, 1899.

Civil Parishes.	Inhabited Houses, 1891	1897	1898	1899	October, 1899. Houses Void.	Other Bdgs Ocpd.	Void.	1899 Assessable Value.
Walcot ...	4365	4599	4622	4644	367	274	24	£136,195
St. Michael's ...	342	442	423	422	14	71	8	24,005
SS. Peter & Paul	234	302	284	263	10	33	2	20,008
St. James's ...	614	645	649	637	18	116	8	25,016
Bathwick ...	797	757	763	763	108	73	12	37,888
Lyn-Widcombe	2581	2711	2754	2829	152	113	8	59,410
Bath ...	8933	9456	9495	9558	669	680	62	£302,522

The figures for 1891 are from the Census, which is taken in April; those for subsequent years are from the Clerk and Treasurer, and are taken from the Rate Books for Half-year ending October 1st. It is satisfactory to find there is a slight increase in the number of occupied houses, notwithstanding the great increase in the number of new houses immediately outside the city boundary.

Tenements with less than Five Rooms,

Distinguishing those occupied by various numbers of Persons.

Rooms in Tenmnt.	No. of Tnmts.	Number of Occupants of Tenements. 1	2	3	4	5	6	7	8	9	10	11	12
1	1130	771	251	69	27	10	2	—	—	—	—	—	—
2	1767	492	584	333	175	101	47	21	10	3	1	—	—
3	1436	116	357	292	253	150	121	75	43	20	7	2	—
4	1642	55	300	299	291	251	178	126	81	38	20	1	2

The total number of tenements in 1891 was 12,056. Proportion of overcrowding (of excess beyond two persons per room), 4·11 per cent. to total population. There were in 1891 five great towns with less overcrowding than Bath, viz.:—Croydon, Portsmouth, Leicester, Nottingham and Derby, but the proportion for England and Wales, including all the great towns, was 11·23 per cent.

VITAL STATISTICS.

Marriages Registered in the City of Bath.

Quinquennial Mean, 1891-5, Years 1896, 1897, 1898, 1899.

Period.	Winter.	Spring.	Summer.	Autumn.	Year.	Rate.
1891-95	88	122	131	126	466	17·8
1896	91	116	118	116	441	16·8
1897	65	108	158	136	467	17·8
1898	74	147	122	110	453	17·3
1899	80	121	123	120	441	16·8

Quarterly Return of Births and Birth-Rates, 1899.

	Births Registered.	Winter.	Spring.	Summer.	Autumn.	Year.
Bath ...	Legitimate ...	249	269	246	201	... 965
	Illegitimate ...	17	12	17	9	... 55
	Total ...	266	281	263	210	... 1020
	Rate per 1000 ...	20·3	21 4	20 1	16.0	...19 39
English Rate per 1000 ...		29·6	30·2	28·9	28·3	... 29·3

Illegitimate Births.—The infants registered as born out of wedlock in 1899 numbered 55 ; they were in the proportion of 54 per 1000 births. The proportion for England in 1897 was 42 per 1000 births, the lowest rate being in Middlesex, 30 per 1000 births, and the highest in Shropshire and Cumberland, 71 per 1000 births.

Vaccination Returns.

Children Born, Vaccinated, or Dying before Vaccination.

	1896.			1887.			1898.			1st Half 1899.		
District.	Born.	Vac.	Died.	Born.	Vac.	Died.	Born.	Vac.	Died.	Born.	Vac.	Died.
Walcot	658	441	73	637	309	70	603	318	74	332	142	38
Lyn-Wid.	359	232	50	326	161	27	358	180	43	197	100	14
Bathwick	48	37	5	50	27	4	48	35	2	19	11	2
Bath	1065	710	128	1013	497	101	1009	533	119	548	253	54

The rates per 1000 possible primary vaccinations for past years were as follows :—1891, 657 ; 1892, 631 ; 1893, 711 ; 1894, 751 ; 1895, 814 ; 1896, 758 ; 1897, 545 ; 1898, 599.

Public Elementary Schools.

The maximum monthly average number of Children on the books of the various Elementary Schools was 7,097 in August; 1,087 being under 5 years of age. The maximum monthly average attendance was 6,264 in October. The percentage attendance for the year was 86·5, which is the highest on record for Bath.

Two Schools were closed during the year on my advice, viz., St. Luke's Schools, from February 8th to 25th, on account of the prevalence of measles; and St Saviour's Infant School, from December 15th to January 15th, on account of mumps.

St. Saviour's Infant School was somewhat overcrowded during the last five months of the year. The capacity is for 186 infants, but the average number on the books for these months was 259, and the average attendance 206.

Table B.—Population, Births, and New Cases of Infectious Sickness.

New cases of sickness in each Locality, coming to the knowledge of the Medical Officer of Health. ** Cases Removed.*

Names of Localities.	Population at all Ages.		Registered Births.	Aged under 5 or over 5.	Scarlatina.	Diphtheria.	Enteric or Typhoid. Continued.		Puerperal.	Erysipelas.	Scarlatina.	Diphtheria.
	Last Census.	Estimated to middle of 1899.										
Walcot	33,360	33,600	604	Under 5	8	5	...	...	...	2	8	4
				5 upwards	21	10	10	...	2	38	16	5
,, Hospitals	(333)	...	...	Under 5	..	3	2	...	...	...	...	...
				5 upwards	...	4	28	...	...	4	...	1
Lyn-Widcombe	13,770	14,350	343	Under 5	8	3	...	...	...	2	6	...
				5 upwards	18	4	5	2	...	10	14	1
,, Workhouse	(621)	...	19	Under 5	...	...	...	...	...	...	...	...
				5 upwards	...	...	3	...	...	5	...	...
Bathwick ...	4,714	4,650	44	Under 5	1	...	...	...	...	...	1	...
				5 upwards	1	5	.	...	1	4	...	3
Bath	51,844	52,600	1,020	Under 5	17	11	2	...	...	4	15	4
				5 upwards	40	23	46	2	3	61	30	10

* *Number of such cases removed from their homes in the several Localities for treatment in Isolation Hospital.*

Weekly Notifications of Infectious Disease.

WEEK. No.	Date of Ending.	Small Pox.	Scarlet Fever.	Diphtheria.	Typhoid Fever.	Puerperal Fever.	Erysipelas.	Total.
1	January 7	—	—	2	1	—	3	6
2	14	—	—	—	—	—	—	—
3	21	—	1	1	—	—	1	3
4	28	—	—	—	1	—	5	6
5	February 4	—	2	—	—	—	1	3
6	11	—	—	1	—	—	—	1
7	18	—	1	—	—	—	4	5
8	25	—	—	1	—	—	1	2
9	March 4	—	—	1	—	—	—	1
10	11	—	1	2	—	—	3	6
11	18	—	1		1	1	3	6
12	25	—	—	—	1	1	—	2
13	April 1	—	—	—	—	—	1	1
14	8	—	—	—	—	—	—	—
15	15	—	1	1	1	1	1	5
16	22	—	1	—	—	—	—	1
17	29	—		—	—	—	4	4
18	May 6	—	2	—	2	—	—	4
19	13	—	—	—	—	—	—	—
20	20	—	1	1	1	—	1	4
21	27	—	2	—	—	—	2	4
22	June 3	—	—	1	—	—	1	2
23	10	—	1	—	2	—	1	4
24	17	—	1	—	—	—	1	2
25	24	—	2	—	1	—	1	4
26	July 1	—	—	—	1	—	—	1
27	8	—	7	—	4	—	4	15
28	15	—	5	1	—	—	1	7
29	22	—	3	—	1	—	1	5
30	29	—	2	—	1	—	—	3
31	August 5	—	—	1	—	—	2	3
32	12	—	1	1	1	—	2	5
33	19	—	—	—	—	—	1	1
34	26	—	—	—	—	—	1	1
35	Septmbr. 2	—	1	1	—	—	1	3
36	9	—	1	1	—	—	1	3
37	16	—	2	1	5	—	1	9
38	23	—	1	—	10	—	1	12
39	30	—	—	1	2	—	1	4
40	October 7	—	—	1	4	—	2	7
41	14	—	1	2	1	—	—	4
42	21	—	1	—	1	—	1	3
43	28	—	8	3	1	—	2	14
44	Novmbr. 4	—	1	—	3	—	—	4
45	11	—	—	2	—	—	—	2
46	18	—	—	3	2	—	2	7
47	25	—	3	—	—	—	2	5
48	December 2	—	—	2	1	—	—	3
49	9	—	—	—	—	—	—	—
50	16	—	—	1	—	—	2	3
51	23	—	2	1	1	—	1	5
52	30	—	1	1	—	—	2	4
	Totals	—	57	34	50	3	65	209

Of the cases of typhoid fever 14 were from Rural Districts.

Cases Notified under the Infectious Disease Notification Act.

Act came into force in Bath March 1st, 1890.

	Small Pox.	Scarlet Fever.	Diphtheria.	Enteric Fever.*	Erysipelas.*	Puerperal Fever.	Total.
1890 ...	—	41	7	12	16	—	76
1891 ...	—	250	9	18	24	—	301
1892 ...	—	407	15	12	28	—	462
1893 ...	15	319	48	13	66	4	465
1894 ...	1	110	53	23	55	1	243
1895 ...	—	79	52	13	61	—	205
1896 ...	—	141	73	20	60	1	295
1897 ...	—	194	67	12	59	2	334
1898 ...	—	67	42	17	51	3	180
1899 ...	—	57	34	50	65	3	209

* Including all cases of enteric fever and erysipelas occurring in Royal United Hospital and Workhouse, many of which were brought from the Rural District.

Some at least of the notifiable diseases might be supposed to be associated with the dwelling, and as the periods of incubation are in all cases known to be only a few days, a floating population would tend to accentuate rather than attenuate the probability of multiple cases occurring in the same house if the house were infectious. In the majority of cases, during non-epidemic years, it is difficult to trace the source of infection; one is led to believe in sporadic cases, *i.e.*, cases which seem to have no connection with any pre-existing case. If it were known that disease organisms flourished in the soil or in the house for years, and only now and again attacked a susceptible person, it would be easy to account for sporadic cases; but sporadic cases ought to be more common in some houses than in others, and so we should get multiple cases in the same house. Examining our returns since the Notification Act has been in force, I am unable to get any evidence of this. Thus, since March 1, 1890, we have had 1,448 cases of scarlet fever in 1,037 private houses; there were two or more cases in 257 houses, but in all but forty-two houses the second cases occurred in less than two months from the first, and therefore might have been acquired from them. We are dealing with a period of nearly ten years, and a second incidence of scarlet fever only in 4 per cent. of the houses does not point to house infection, especially as disinfection until recently has been very imperfectly carried out, while isolation in hospital has been offered to all.

Diphtheria we certainly have some reason to believe is likely to be associated with particular districts and houses. During the nine and a half years referred to, we have had 342 cases in 303 houses, and in all but nine the second case could be traced to the first. Our statistics for erysipelas, enteric fever, small-pox and puerperal fever all teach the same lesson. Infectious diseases are generally conveyed by persons or food. Inanimate objects seldom remain infectious for any length of time, but at schools and public institutions they carry infection occasionally.

Infectious Diseases Notified in Private Dwellings in Bath, 1890-1899.

Population, 51,844 ; Occupied Houses, 8,933—Census 1891.

Number of Houses in which one or more cases of Notifiable Infectious Diseases occurred since 1890.

No of Cases per House	Small Pox.	Scarlet Fever	Diphtheria	Enteric Fever.*	Puerpl. Fever.	Erysipelas.*
	Houses.	Houses.	Houses.	Houses.	Houses.	Houses.
1 ...	7	780	268	110	14	292
2 ...	2	166	21	6	—	12
3 ...	1	56	11	—	—	2
4 ...	—	18	3	—	—	—
5 ...	—	13	—	—	—	—
6 ...	—	1	—	—	—	—
7 ...	—	1	—	1	—	—
8 ...	—	1	—	—	—	—
9 ...	—	—	—	—	—	—
10 ...	—	1	—	—	—	—

* Not including cases notified after admission to Public Institutions.

The following are the total numbers of notifications received from Public Institutions and not included in the above table :—

Mineral Water Hospital : Scarlet fever, 7 ; erysipelas, 4 ; diphtheria, 2 cases.

Royal United Hospital: Scarlet fever, 29 ; erysipelas, 34 ; enteric fever, 14 ; diphtheria. 6 cases.

Workhouse : Scarlet fever, 34 ; erysipelas, 95 : enteric fever, 29 ; diphtheria, 1 ; puerperal fever, 1 case.

Nearly all the scarlet fover cases were, after notification, removed to the Statutory Hospital on Claverton Down.

The Statutory Hospital.

The Inspector of Nuisances' Report on this institution will be found in the Appendix, and shows as usual a very low case mortality from scarlet fever—less than 2 per cent. I am of the opinion that the Statutory Hospital as at present arranged is only adapted for the treatment of one disease, and severe cases of diphtheria are nearly always treated at home, where they can have early surgical assistance. Fortunately diphtheria seldom spreads from one person to another after the disease has been recognised. Typhoid fever cases are at present treated at the Royal United Hospital with very great advantage to the patients and to the community, but the accommodation thus provided has been severely taxed during the past year. We have made no provision for possible cases of small-pox, and I believe the Statutory Hospital Management Committee have had some correspondence with the Local Government Board on this subject. For a city such as Bath a small-pox hospital should be provided. The possibility of a chance case of plague has also to be considered. Families from India very frequently come direct from Southampton to Bath, and we ought to be prepared to deal with a case of plague should one escape the vigilance of the Port Sanitary Authority. The observation ward of a small-pox hospital would be available for such an emergency.

Disinfection.

The Washington Lyon Steam Disinfector has been in use for several months, and considerable quantities of bedding and clothes have been disinfected by steam. The pipes of the Disinfector have been rearranged so that the exhaustor for creating a vacuum in the inner chamber may be used without necessarily heating the jacket to the temperature of the steam. I hope to be able to disinfect books and other articles injured by steam by means of some chemical which may be driven into the interstices of goods with the air after a vacuum has been made and broken. The difficulty is to find an efficient disinfectant which shall not injure the goods or the machine. Experiments have been made with formalin, which is a powerful disinfectant when in solution with water, but I do not get satisfactory results with formalin vapour.

The Equifex Sprayer has been occasionally used for rooms, and found useful in better class houses where there is a danger of injuring delicate wall paper by chlorine. A smaller apparatus would be more portable, and probably answer as well for small rooms. We are now well provided with modern apparatus, but it has not yet been decided to provide shelter for persons whose rooms are being disinfected, and hence the poor have to

disperse themselves among their neighbours for six or eight hours while disinfection is in progress. Any small house might be fitted up as a shelter. A few chairs, a table, and a bath-room are the essential features ; a caretaker is not absolutely necessary. A shelter in the vicinity of the disinfector could be easily managed.

Mortuary Accommodation.

There is a commodious Mortuary under the direction of the Walcot Burial Board, and another is to be provided by the Urban Sanitary Authority. The Sanitary Committee recommended that a site for a Mortuary consisting of G.W.R. arches should be secured at £8 per annum, and that a sum of £250 should be expended in fitting up as a Mortuary. This expenditure has been sanctioned by the Council.

In addition to the ordinary Mortuary chamber, there should be special provision for bodies of persons dead of infectious diseases, and both chambers should be provided with "viewing windows," so that persons might, when necessary, see the dead without entering the room containing the body. There should also be a post-mortem room suitably fitted up. A store-room for coffin shells and for bodies awaiting burial, a waiting room where the members of a jury can meet, and the usual offices are generally provided in London.

Deaths and Death-rates.

The total number of deaths registered in Bath during the year 1899 was 961, which with a population of 52,600 is equivalent to a death-rate of 18·27 per 1,000 annually. This is the highest death-rate we have had since 1893, when it was 18·5. A similar increase is found in the death-rate of England and Wales, and residential towns seem to have suffered most.

In the Appendix of this report will be found a tabulated statement of deaths from all causes, classified according to diseases, sex and age, but in order to ascertain if possible the cause of the increase in the death-rate, we must compare with the returns of previous years and examine the details, and we must not forget the abnormal constitution of the population as regards age groups, for some diseases are peculiar to certain ages.

The Registrar-General publishes the death-rates for England aud Wales from several separate causes at all ages, and at twelve groups of ages for each sex. From these it is possible to calculate the normal number of deaths in any population, however much it may differ, in the relative proportions of the different age groups, from the standard ; this has been done for

the following table. The first column of figures shows the number of persons who might be expected to die every year in Bath, if the population were of similar constitution to that of England and Wales and the incidence of fatal disease the same. In the second column correction is made for the larger proportion of females in the Bath population. The third column is fully corrected for age as well as sex, and it is this column which shows the Hypothetical Standard Number of Deaths in one year.

English Death-rates of Various Diseases for 1881-90, applied to Bath 1891 Population, and compared with Actual Deaths during Various Periods 1881-99.

Disease.	Hypothetical Standard Deaths.			Actual Deaths Registered.					
	Not Corrected for Age or Sex	Corrected for Sex only.	Corrected for Age and Sex.	1881 to 1890 Mean.	1891 to 1895. Mean.	1896.	1897.	1898.	1899
Measles ...	23	23	16	12·6	9·3	9	11	16	7
Scarlet Fever ...	17	17	13	?	7	8	5	1	1
Influenza	—		—	—	39·2	12	12	33	58
Whooping-cough ...	23	24	16	11·2	15	1	15	14	3
Diphtheria	8	8	6	?	6·8	20	16	4	9
Fevers (Typhoid) ...	12	12	12	5	3	5	3	3	6
Diarrhœa (Infantile)	35	35	29	?	?	28	13	31	37
Cancer	31	32	42	53·8	57·4	62	65	63	78
Phthisis	89	88	94	88·5	78·2	61	64	59	69
Other Tubercular ...	36	35	27	39	34·6	35	22	28	33
Nervous System ...	134	133	145	158·4	124	136	107	92	93
Circulatory System ...	82	82	110	111·5	123	132	118	118	141
Respiratory System...	193	190	202	184	176	160	161	125	122
Bronchitis	111	110	123	129	111	84	95	68	61
Pneumonia ...	55	54	52	48	58	56	52	53	47
Digestive System ...	57	57	62	50	61	59	47	45	53
Urinary System ...	23	22	27	38	37	32	29	40	36
Death from Violence	34	31	32	32	36	35	36	45	31
All Causes	989	980	056	1048	981	921	861	856	961

Annual Death Rates per 1000 from All Causes, and from several Zymotic Diseases, during the Year 1899.

	All causes.	Principal Zymotic Diseases. Cols. 3-9.	Smallpox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Deaths under 1 year per 1000 Births.
Col.	1	2	3	4	5	6	7	8	9	10
England and Wales ...	18·3	2·21	0·01	0·31	0·12	0·29	0·30	0·20	0·98	163
33 Great Towns ...	20·2	2·81	0·01	0·46	0·13	0·40	0·38	0·22	1·21	181
Bath	18·27	1·20	—	0·13	0·02	0·19	0·06	0·11	0·70	131
67 other Large Towns. .	18·0	2·15	0·00	0·28	0·12	0·28	0·32	0·23	1·22	178
England and Wales, less the 100 Towns	17·1	1·71	0·00	0·21	0·10	0·21	0·25	0·18	0·76	124

"Table A"—Deaths during the Year 1899, in the Bath Urban Sanitary District.

Classified according to Diseases, Ages and Localities.

Name of Locality.	Mortality from all causes at subjoined Ages.								Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age.																
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		Diphtheria	Enteric or Typhoid Fever.	Puerperal Fever.	Gastro Enteritis.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Influenza.	Injuries.	All other Diseases.	Total.
Bathwick ...	52	2	2	1	2	12	33	Under 5	...	...	...	...	...	...	...	...	...	..	...	...	. .	1	3	4
								5 upwds.	...	...	1	...	...	...	...	...	...	...	6	6	7	3	25	48
Lyncombe and Widcombe ...	171	37	13	7	6	60	48	Under 5	3	...	...	2	...	5	3	9	...	...	4	...	1	1	22	50
								5 upwds.	1	...	...	...	...	...	...	...	...	13	16	17	5	3	66	121
Workhouse ...	123	5	1	...	...	39	78	Under 5	...	...	...	...	...	...	...	...	...	...	1	...	...	...	5	6
								5 upwds.	...	...	...	...	...	...	...	2	...	7	8	26	17	3	54	117
Walcot	513	84	26	9	14	176	204	Under 5	1	...	...	8	...	2	...	7	...	...	14	1	1	1	75	110
								5 upwds.	...	4	...	1	3	...	...	3	2	43	61	63	27	7	189	403
Hospitals ...	102	6	10	12	10	56	8	Under 5	1	...	...	...	...	...	...	4	...	...	2	...	...	2	7	16
								5 upwds.	2	4	...	...	2	...	...	1	...	6	8	8	...	10	45	86
Totals ...	961	134	52	29	32	343	371	Under 5	5	...	...	10	...	7	3	20	...	...	21	1	2	5	74	186
								5 upwds.	3	8	1	1	5	...	...	6	2	69	99	120	56	26	379	775
The subjoined numbers have also to be taken into account in judging of the above records of mortality.																									
Deaths occurring outside the district among persons belonging thereto.	...	...	1	1	...	...	...	Under 5	1		...	...	...	1 Scarlet Fever					.	...	...	...		2
								5 upwds.	1		...	...	...	...	...	...	...	...	...	...	...	...		1
Deaths occurring within the district among persons not belonging thereto.	81	3	3	5	6	39	25	Under 5	...	...	...	...	...	...	...	1	...	...	...	...	...	...	5	6
								5 upwds.	...	2	..	...	1	...	...	...	...	3	5	12	3	8	41	75

Deaths at Different Ages Registered in the Years 1896-9.

Population of Bath in Ten Groups of Ages, 1891.

	Under 5	5-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85 up.	All ages
Population ...	4605	9640	10848	7781	6032	5113	3901	2657	1084	183 ...	51,844
1896 (Deaths)	220	24	34	53	65	79	117	146	128	55 ...	921
1897 ,,	198	32	33	45	55	77	107	143	129	42 ...	861
1898 ,,	202	17	37	46	56	77	102	144	130	45 ...	856
1899 ,,	186	29	32	53	73	94	123	161	157	53 ...	961

Deaths at Three Groups of Ages, 1896-9.

Deaths of Persons	1896	1897	1898	1899
Under 35 Years of Age ...	331	308	302	300
Between 35 and 65	261	249	235	290
Over 65 Years of Age ...	329	314	319	371
At all Ages	921	861	856	961

Annual Death Rates at Ten Groups of Ages.

England and Bath, 1896-7 ; Bath, 1898-9.

Deaths to 1,000 living at Age Group.

		All ages.	0-5	5-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85 up
1896	England	17·1	54·9	3·3	4·0	6·2	10·1	15·7	29·2	56·9	122·6	239·5
	Bath ...	17·2	47·8	2·5	3·1	6·8	10·8	15·5	30·0	55·0	118·1	300·5
1897	England	17·4	55·2	3·0	4·0	6·3	10·3	16·0	30·3	59·2	133·1	258·9
	Bath ...	16·4	43·0	3·3	3·0	5·8	9·1	15·1	27·4	53·8	119·0	229·5
1898	England											
	Bath ...	16·3	43·9	1·8	3·4	5·9	9·3	15·1	26·1	54·2	119·9	245·9
1899	Bath ...	18·2	38·2	3·0	3·0	6·8	12·1	18·4	31·5	60·6	144·8	289·6

The Death-rate at all ages is calculated for Bath at the estimated population, 52,600.

Deaths in various Sub-Districts and of Non-Residents in Public Institutions.

	Sub-District.					Bath.		
	Walcot.	Lyn-Wid.	Bath-wick.	External.		Male.	Female.	Persons.
1896 ...	581	211	74	55	...	442	479	921
1897 ...	569	173	58	61	...	389	472	861
1898 ...	553	173	57	73	...	413	443	856
1899 ...	625	201	54	81	...	433	528	961

Seasonal Death-Rate—England and Wales.

BATH CORRECTED TO STANDARD POPULATION.

		Winter.	Spring	Sumr.	Autumn.	Annual
5 Years 1891 to 1895	England & Wales	21·9	18·5	16·5	18·1 ...	18·7
	Bath × 0·94 ...	23·7	17·9	12·9	15·0 .	17·6
	Town Districts ...	25·2	19·1	17·6	19·0 ...	19·5
	Country Districts	21·2	17·4	14·3	16·4 ...	17·3
1896	England & Wales	17·9	16·3	16·3	17·9 ...	17·1
	Bath × 0·94 ...	16·5	14·7	15·3	17·7 ...	16·2
	Town Districts...	18·5	17·2	17·6	18·6 ..	18·0
	Country Districts	16·6	14.5	13·7	16·3 ...	15·3
1897	England & Wales	18·8	16·3	17·8	17·0 ...	17·4
	Bath × 0·94 ...	19·3	14·2	12·3	15·8 ...	15·4
	Town Districts...	18·9	16·6	19·4	17·9 ...	18·2
	Country Districts	18·4	15·6	14·3	14·9 ...	15·8
1898	England & Wales	19·5	16·2	17·9	16·7 ...	17 6
	Bath × 0·94 ...	17·7	14·5	14·2	15·0 ...	15·3
	Town Districts...	19·8	16·6	19·3	17·5 ...	18·3
	Country Districts	18·9	15·4	14·9	15·0 ..	16·0
1899	England & Wales	18·9	16·6	19·2	18·6 ...	18·3
	Bath × 0·94 ...	19·5	16·8	13·4	19·2 ...	17·2
	Town Districts...	19·5	17·1	20·9	19·5 ...	19·2
	Country Districts	17·4	15·6	15·6	16·8 ...	16·3

Seasonal Crude Death-Rates.—Bath.

	Quarter.				Mean or
	Winter.	Spring.	Summer.	Autumn.	Annual.
10 Years 1881-90 ...	24·7	19.6	15·7	20·5 ...	19·9
5 Years 1891-95 ...	25·2	19·0	13·7	16·0 ...	18.8
1896 ...	17·5	15·6	16·3	18·8 ...	17·2
1897 ...	20·5	15·1	13·1	16·8 ...	16·4
1898 ...	18·8	15·4	15·1	16·0 ...	16·3
1899 ...	20·8	17·9	14·3	20·2 ...	18·3
Maximum of 19 Years	31.2	26·4	18·9	26·5 ...	22·6
Minimum do.	17·5	15·1	11·7	14·1 ...	16·3

Sub-District Populations, Births and Deaths.

District.	Estimated Population.	Births. Male.	Fem.	Birth Rate.	Deaths. Male.	Fem.	Crude Death-Rate.
Walcot ...	33,600 ...	307	307 ...	18·3 ...	223	290	18·3
Hospitals	...	...	...	...	60	42 ...	
Lyn-Widcombe	14,350 ...	174	169 ...	25·2 ..	65	106	20·5
Workhouse	...	12	7 ...	...	64	59 ...	
Bathwick ...	4,650 ...	21	23 ...	9·5 ...	21	31 ...	11·2
City of Bath ...	52,600 ...	514	506 ..	19·4 ..	433	528 ...	18·3

There were 225 deaths in Public Institutions, the percentage of deaths in Public Institutions to total deaths being 23·4. In the following table these deaths have been distributed to the districts in which the persons lived before being removed to the Public Institutions. Deaths at the Statutory Hospital are included, and the death-rates corrected for age and sex to standard population.

Corrected Sub-District Deaths & Death-Rates.

Usual Residence when Living.	Where Death Occurred: Private Dwelling.	Hosp'ls.	Work-house.	Total Deaths.	Corrected Death Rate.
Walcot	505	50	73	628	17·3
Lyncombe and Widcombe	171	11	19	201	12·9
Bathwick	45	3	6	54	10·2
City of Bath	722	63	98	882	15·8
Various External Districts	13	41	27	81	

The increase in the number of deaths has been entirely among persons above 35 years of age In the above tables rates are given for each age group, but these rates are calculated upon the population of 1891, and for the age groups above 75 are open to serious error as we are dealing with small numbers.

As regards the mortality in the three sub-districts, it is interesting to observe the absence of any increase in Bathwick, notwithstanding the prevalence of influenza, but here again we are dealing with small numbers.

Comparing the incidence of death upon males and females the increase is apparently greater among the females ; but the death-rate of females, 16·9, is still much lower than the death-rate of males, 20·2. The number of males who were over 85 years of age at death was 12, while there were 41 females, and this is about the proportion of the sexes at the Census 1891, when there were 46 males and 137 females above 85 years of age.

The crude death-rate—deaths from all causes per 1,000 persons of all ages—was 18·3. The death-rate corrected to standard age population was 17·2, or deducting deaths of persons brought to Bath from outside districts for treatment in our public institutions, 15·8. The death-rate for England and Wales was 18·3 per 1,000.

The death-rates for the three sub-districts are given in the tables, the great difference between the crude and corrected death-rate for Lyncombe and Widcombe shows how important the correction is.

In reviewing the number of deaths from various diseases for different years we find influenza, tuberculosis, and heart disease combined caused an increase of 63 deaths over the numbers recorded for 1898. The deaths from influenza were in excess of any previous record, and equal to a death-rate of 1·1 per 1,000 living persons. The returns for England and Wales for

1898 and 1899 are not yet published, and I have not been able to obtain information from a sufficient number of towns for comparison. But in order to compare the Bath death-rate from influenza with that of England it must be multiplied by the factor 0·745, which makes our death-rate 0·82 per 1,000 in 1899 instead of 1·1 per 1,000. It is impossible to give any correct estimate of the number of persons who suffered from influenza, as only those cases which terminate fatally are reported. The disease showed no marked prevalence in any one locality, but seemed to attack the aged and weak wherever they were. Bath, as "the general hospital of the nation," is certain to suffer in every visitation of this disease. For three preceding years the deaths among elderly people were considerably below the average number; we had, therefore, a larger proportion of elderly invalids in our population than usual. The increase in the numbers of deaths from phthisis and from heart disease was probably in some measure due to the prevalence of influenza; if this was so the deaths for the next year or two from these diseases will be below the average. The onset of influenza is so sudden, and its general prevalence so great that we seem powerless to control the disease or prevent its spread. When once the disease becomes pandemic in England it is almost impossible to avoid chance infection, but persons suffering from influenza should at once seek medical treatment, and not expose themselves in public places.

The cases of typhoid fever notified during the year 1899 were considerably in excess of any previous year since notification has become compulsory. There were 50 cases and 8 deaths, but of these there were 14 cases and 2 deaths among persons brought into Bath when suffering from the fever for treatment at the Royal United Hospital, leaving 36 cases and 6 deaths among the residents of Bath, which give a case rate of 0·68 per 1,000, and a case mortality of 16·6 per cent. I investigated the circumstances of these cases, and found most of them were as far as I could ascertain sporadic, or not connected with any other case. But there were five cases which were traced to the improper use of river water, which had been laid on at a factory for cooling purposes. As the intake of the water was not far removed from the outlet of the sewer from the Royal United Hospital, where there are usually some cases of typhoid, it is easy to see the danger of having river water within reach of careless people, no matter what notices may caution them against its use. The manager of the factory has promised to discontinue the use of the river water, although the substitution of city water will mean a considerable expense to his firm.

Infantile diarrhœa was also more prevalent than usual last year, and we lost 30 children under five years of age from this cause. Most of the deaths occurred in September, and a careful study of the chart on page 45 will show how intimately the earth temperature is associated with the rise in the death rate of young children. In this chart the deaths are referred to the week in which they occurred, and for comparison the number of deaths registered in the same week is shown by a thin white column. The shading of the column shows the various age groups—deaths under 1 year of age, 1—5, 5—60, and over 60. Infantile diarrhœa is most commonly caused by a micro-organism which grows rapidly in milk in warm weather. Breast-fed children seldom die of diarrhœa, and with proper care the dangers of artificial feeding may be lessened. With the sanction of the Sanitary Committee, leaflets concerning the feeding of infants were sent to every house in which a child was born during the year, and Mr. Davis, the sub-registrar for Lyn-Widcombe, is good enough to give to every person registering the birth of a child in his district a similar leaflet. As we lose one-sixth of the infants during the first year of life there is certainly room for improvement, though our infantile mortality is below the average. In many of the large towns female sanitary inspectors have been appointed, and in the summer months they pay particular attention to the surroundings of young children. In some smaller towns similar work is done by private enterprise. For example, at Chesterfield, population 22,000, an Infant Life Protection Society was formed in 1896 to educate those entrusted with the care of infants, and has employed a lady whose business it is to visit all houses where births have taken place, and show the mothers how the children should be reared. The Town Council of Chesterfield has been so impressed with the usefulness of the Society that it has made a grant of £40 towards the funds.

Phthisis caused the deaths of 39 males and 30 females, giving a death rate for males of 1·8 per 1,000, and for females of 1 per 1,000. The death rates from phthisis in England for 1897 were males 1·5, females 1·2 per 1,000. The difference between male and female death rates in such a city as Bath is very largely an artificial difference. A considerable portion of our young males seek employment in London and other large towns, and when stricken with disease many come home to die. The general prevalence of influenza had probably some influence in raising the death-rate from phthisis. So much prominence has been given in the public press during the past year to the prevention of tuberculosis that it is unnecessary for

me to refer to the methods in common use. We have made it a practice for three or four years of offering to disinfect and we distribute leaflets freely. The Crusade against tuberculosis is not carried on with much vigour in this district ; popular interest does not appear to be roused, and it seems easier to get a public meeting to support the abominations of private slaughterhouses, in the interest of Agriculture, than a similar gathering to discuss the best means of preventing a disease which is clearly traceable, in a great measure, to tubercular animals, and which is to some extent fostered by allowing such animals to pass on to the butcher without inpection. Tuberculosis causes the death of 41,000 persons in England every year.

The Protection of Food from Contamination.

The importance of protecting water from pollution is generally recognized, and an epidemic of typhoid fever, which is the best known English water-borne disease, is always thoroughly investigated. The death-rate from typhoid fever in England is therefore low, but other diseases, the germs of which are undoubtedly conveyed in food, still cause great mortality among young children. In 1897 the total number of deaths from typhoid fever registered in England was 4,851 : of these 3,446 were deaths of persons between the ages of 15 and 55. One district contributed 150 deaths, and this outbreak was made the subject of an Inquiry by the Local Government Board. For the same year the deaths in England from diarrhœa were 26,099, of which 23,697 were deaths of children under five years of age, and there can be little doubt the disease was caused by living organisms conveyed in food.

Food may become contaminated at the source of production, in the course of distribution, or after it has reached the consumer. No bye-laws for regulating the conduct of particular trades will be of much benefit in protecting food unless the surroundings of the dwelling-house are satisfactory. Our great object is to protect food from pollution with excremental matter and the organisms associated with such filth. It was formerly supposed that sewer gas was the great bane of humanity in crowded towns, and no doubt sewer gas predisposes to disease much in the same way as does coal gas, escaping in small quantities from defective fittings. Since micro-organisms have been recognised and studied in relation to disease, the probability of disease germs being strictly speaking air-borne is known to be remote ; air can carry infectious dust short distances, but the conditions under which the dust is carried favours disinfection.

Malaria, or marsh fever, which was by many thought to be caused by the impure air of swampy ground is now known to be due to infection by the mosquito, which frequents pools of water and rice fields. In England the common house fly probably serves as a general carrier of germs ; that it can so act is easily proved experimentally. If a fly is made to walk over a surface moistened by a culture of micro-organisms and afterwards on bread or jelly, the line of march of the fly will be marked by growths of the particular organism, if the bread or jelly is afterwards kept in a warm, dark place. In the same way a fly can no doubt carry germs from the dung, amidst which it first sees light, to carcases in the adjacent slaughter-house. Once placed on meat the organisms multiply rapidly and every fly which visits such meat may obtain a supply of organisms to pass on to the next article of food upon which it alights. The organisms, or bacilli, upon the meat will perish by cooking, but for some days the uncooked meat may be the happy hunting ground of numerous flies. In many houses the pantry, the watercloset and the rubbish heap are side by side, and every facility is offered for the transference of offensive matter from one place to another. In our present state of knowledge it is impossible to estimate the extent of this evil.

THE WATER SUPPLY.

Bath has an exceptionally good water supply derived from numerous springs The upper springs are thrown out by the clays of the Fuller's Earth underlying the Great or Bath Oolite : these springs are superficial, and responding readily to the rainfall vary greatly in their yield. The lower springs issue from the Upper Lias or Midford Sands, and are more constant. The progress of the Bath Waterworks was described in the 1896 Report by Mr. Gilby, C.E. Since then the Monkswood Reservoir of 51,000,000 gallons capacity has been taken into use, which, with the Batheaston Reservoir of 9,000,000 gallons, and the smaller service Reservoirs of Bathwick, Charlcombe, and Lansdown, with an aggregate capacity of over 500,000 gallons, will probably ensure a constant service in all ordinary years. During the drought of the past year the supply was not limited, and the average daily consumption was 21·85 gallons for each person.

The catchment area is chiefly pasture land, but there are a few fields under cultivation and some scattered dwellings. The illustration of the Monkswood Reservoir (which is kindly lent by the *Lancet)* shows fairly well the character of the surrounding country at all our sources of

MONKSWOOD RESERVOIR.

CAPACITY 51.000,000 GALLONS.

supply. During October, 1897, I made several quantitative bacterioscopic examinations of various samples from representative springs. I found in water taken as it came from the spring from 4 to 16 micro-organisms per cubic centimetre (about 20 drops). Water which has been filtered through sand filters is considered to be bacterially good if less than 100 organisms per cubic centimetre are found, but the layer of Midford sands, through which a great portion of our water passes, is in the neighbourhood of Bath from 40 to 150 feet in thickness, and must be therefore more efficient than any artificially-prepared sand filter.

The latest analyses of our water supplies are found in the Report of the *Lancet* Special Commissioner on the sanitary condition of Bath, and the following is a reprint from the *Lancet*, October 14, 1899 :—

The Analyses of the Town Water-supplies.

" The two chief sources of water-supply to Bath are, as has already been pointed out by our Sanitary Commissioner, at Batheaston and Monkswood. These conjoint supplies are quite adequate for the service of the city and it remains to make inquiry into the quality of the supply thus available. Accordingly our Laboratory Commissioners in association with our Sanitary Commissioner inspected the sources of supply and secured samples at both reservoirs as well as samples also of the water representing it in the condition in which it is delivered from the services in the city of Bath some miles away. The following are the results in grains per gallon :—

Batheaston Water-supply.

	Water from the reservoir.	Water from the town main.
Free ammonia	0·0019	0·0010
Albuminoid ammonia	0·0010	0·0010
Nitrogen in nitrates	0·182	0·175
Nitrogen in nitrites	Nil	Nil
Chlorine in chlorides	1·12	1·15
Oxygen absorbed	Nil	Nil
Temporary hardness	7·81	8·06
Permanent ,,	12·19	11·20
Total ,,	20·00	19·26
Total solids ,,	23·52	26·88
Phosphates ,,	Nil	Nil
Behaviour on ignition of solids	Satisfactory	Satisfactory
Colour	Pale green	Pale green
Smell	None	None
Taste	Fresh and palatable	Fresh and palatable
Heavy metals	None	None

Monkswood Water-supply.

	Water from the reservoir.	Water from the town main.
Free ammonia	0·0028	0·0028
Albuminoid ammonia ...	0 0014	0·0014
Nitrogen in nitrates... ...	0·161	0·175
Nitrogen in nitrites	Nil	Nil
Chlorine in chlorides ...	0·945	0·945
Oxygen absorbed	Nil	Nil
Temporary hardness... ...	5·00	8·60
Permanent ,, ...	10 50	10·40
Total ,, ...	15.50	19·00
Total solids	20·72	24·08
Phosphates	Nil	Nil
Behaviour on ignition of solids	Satisfactory	Satisfactory
Colour	Pale green	Pale green
Smell	None	None
Taste	Fresh and palatable	Fresh and palatable
Heavy metals	None	None

These analyses present satisfactory features in conjunction with the results of the inspection of the sources of supply and their environment. There is little difference between the composition of the Batheaston supply and the Monkswood supply. Both are chalky and both give evidence of being free from any impurity organised or unorganised; indeed, the character of the water-supply of Bath is excellent. It is not only abundant but of admirable purity. The analyses show slight and negligible differences between the water obtained direct from the reservoirs and from the city service main, differences which are only due to a slight variation in the mineral matters which is easily explicable. The important deduction, however, to be drawn from these comparative analyses is that the system of service supply is free from reproach and that the pure waters at the reservoirs are delivered unchanged and in excellent quality to the consumer."

Although we have such a pure and abundant supply of water, some private wells are still used, though from their surroundings the wells must be liable to serious pollution. Because a particular family has used the water for drinking purposes for a considerable time without any obvious ill-effect it does not follow that the water is pure. Persons by long use become accustomed to and are able to resist poisons in water which may be most injurious to other persons. It is most important that all water should be above suspicion if used in the preparation of beverages or in trades connected with the food supply, and we generally insist upon the city water

being used ; but for private houses, unless the well water is proved to be impure, a supply of city water is not insisted upon. By order of the Sanitary Committee the city water has been laid on at the following houses :—15 and 16, Widcombe Parade ; Perrymead Cemetery Lodge ; 6, Prospect Place ; 8, Lambridge ; 2, Park Place ; 5 and 7, Cavendish Place ; Cavendish Villa ; 2, Winifred's Dale ; St. Winifred's ; Ivy House ; and at 13, Henrietta Road.

Mineral Water Factories.

I have recently inspected all places in Bath where aerated waters are manufactured for sale, and I found that the inspection was needed. This branch of our food supply appears to have been overlooked in recent legislation, which has done so much to enable Sanitary Authorities to insist upon some standard of cleanliness in bakehouses and milk-shops. Considerable alterations have been made, and I hope before next summer all the factories will be in good condition.

Bakehouses.

These have been kept well under observation, and, as a rule, comply with the requirements of the Factory and Workshops Act. Bakers generally seem anxious to keep their premises up to date, and ready to carry out any suggestion for improvements, but on two or three occasions yards adjoining bakehouses, which had been uncovered at my request, have been surreptitiously again covered, and articles of food, jellies, &c., kept in an atmosphere which was dangerously impure. My annual inspection is not sufficient to guard against vagaries of this description. All bakehouses should be inspected at least once in three months.

Dairies, Cow-sheds and Milk-shops.

Within the city boundaries are thirteen dairy farms, and about 220 cows. These farms could easily be made model farms, and as the cows live chiefly in the open air they ought to be healthy.

Several most unsuitable places have been registered as dairies, and our new Regulations under the Dairies, Cow-sheds and Milkshops Order of 1885 should be strictly enforced.

All rooms in which milk is kept or milk vessels stored should comply with these regulations, and not merely one room which is by courtesy called the dairy.

A considerable portion of our milk comes from outside farms which may or may not be under some kind of supervision. The use of preservatives enables milk sellers to import milk from abroad and enter into unfair competition with home producers. In my opinion no preservative should be permitted ; milk collected in clean vessels will keep quite well for 36 or 48 hours without any addition, and it is not advisable to keep it longer. All milk which is used in the preparation of food for children should be scalded.

Slaughter Houses.

There are 42 licensed slaughter houses, and 28 of these are in use at the present time. I can only repeat what has been said on this subject—without a public abattoir efficient inspection is almost impossible ; there is an open door for diseased meat. This fact was well illustrated by a case which came before our magistrates in December. One afternoon I received information that a cow had been killed under suspicious circumstances and would probably be sold as butcher's meat. I accordingly communicated with the Inspector of Nuisances and requested him to investigate the circumstances early the next day. He found the farmer who had sold the animal, who informed him the cow had calved ten days earlier and had been ill ever since. When the animal could no longer stand a butcher had been called in to kill it, and he offered £2 for the carcase ; his offer was accepted. The carcase was dressed and skewered ready for the market when found by the Inspector, who seized and brought it to the Guildhall. The meat itself would not have attracted attention but I noticed numerous patches of suspicious character in the lungs and the blood vessels were stained. The cow was evidently suffering from blood poisoning when slaughtered. A magistrate, after hearing the evidence, ordered the carcase to be destroyed. A veterinary surgeon was called to make a further examination, and it was burnt in the Destructor. The Sanitary Committee ordered a prosecution, and proceedings were taken against the butcher. It was pleaded in defence, at the trial, that the meat was not intended for sale as human food but for the kennels ; but evidence having been given to show that the carcase was prepared as for the market by bleeding and dressing, the

butcher was convicted and sent to prison for one month without the option of a fine.

A mere chance led to the seizure of this carcase, for we have no systematic inspection of meat, and with 28 private slaughter houses it is difficult to see how we can exercise proper control. It might be expected that butchers would welcome a public slaughter house and inspection of imported meat, as it would protect them from unfair competition with unscrupulous men, but they strongly oppose all efforts to alter the present system and some appear to think any old shed good enough for a slaughter house, a store house for meat, and a sheep pen. The animals are slaughtered in the presence of their companions. Meat is often allowed to hang for days in a polluted atmosphere, it may afterwards be daintily floured and decked in a shop where everything is neat and clean, but unless eaten when tough it will probably be tainted.

New bye-laws for slaughter houses have been made this year, but the Local Government Board refused to sanction a bye-law requiring the internal surface of the slaughter house to be thoroughly washed with hot lime-wash at least once a month, thinking once in three months often enough. They also refused to allow the following bye-law :—"He shall not allow the act of slaughtering any animal within the view of any other animal in such slaughter house, nor in the presence of any person under the age of 16 years, unless in the employ of the occupier of such slaughter house," although such bye-laws have been sanctioned for other towns.

A slaughter house ought to be entirely separate from the lairs in which the living animals are kept, and the carcase should be removed to another separate cooling room as soon as it is prepared, overhead rails would facilitate the transference of the carcase. All walls should be covered with hard, smooth, impervious material to a height of at least six feet, the floors should be of granite-cement concrete or similar material, sloping towards a channel leading to a gully outside the slaughter house. The walls and floor could then be washed daily after work; limewashing covers blood but does not prevent putrefaction.

A series of small slaughter houses, with cooling rooms and cattle sheds separated from the slaughter houses by wide passages, if built near a railway, would probably let well and possess all the advantages of a public slaughter house. Butchers, tripe-boilers and other traders would have their own buildings

near together and easily supervised. Cheltenham, Exeter and Weston-super-Mare have public slaughter houses, and the butchers have learnt to appreciate them.

———

The Storage, Collection and Disposal of Refuse.

The receptacles for the temporary storage of house refuse are generally too large and not easily cleared of their contents. If vegetable and animal substances were burnt and only the ashes retained, no nuisance would result, but too frequently all sorts of filth may be found in the ash-bin. The galvanized iron ash-bin, which is properly covered and capable of being carried by the dustman, is a great improvement upon fixed receptacles, but is usually not made strong enough to stand the treatment it receives from the dustman, and in tenement houses the tenants knock it out of shape in a short time. In some localities no receptacles are used, the refuse is thrown into the street, and after being scattered by fowls and street urchins is partially collected by the scavengers who visit these streets daily. The new bye-laws for houses let in lodgings should be put into force in Avon-street, and the practice of making rubbish heaps in streets no longer permitted. Four fresh cells have been added to the Destructor, and I believe it is now capable of burning all our house refuse.

There is room for great improvement in dealing with stable manure. Dung-heaps exposed to the weather are dangerous in large towns. Frequent removal and well-covered receptacles should be insisted upon without waiting for complaints.

———

THE HOUSING OF THE WORKING CLASSES.

House to house inspections have been made in some districts and considerable improvements carried out during the year. All the houses at North Parade Buildings have been provided with additional water supplies and water closet accommodation, so that there shall be at least one water closet to twelve persons, easy of access from the upper stories of the house,

and it is no longer necessary to go down seventy or eighty stairs for water for cleansing purposes. These houses are now really good tenement houses with thick walls, wide passages, and lofty rooms, but they require regular inspection, as indeed do most houses let in tenements. At present we have no systematic method of inspection, and our new Bye-laws for tenement houses will be of little use unless regular visits are paid to see they are carried out. I consider that with the addition of an office boy we have sufficient staff for the work.

There are still a few basements occupied as cellar dwellings. Some tenement houses have double basements, the upper basement being a cellar dwelling within the meaning of the Public Health Act, 1875, only because the ceiling may not be three feet above the nearest roadway. When these are kept clean and occupied by elderly persons, whose only other refuge is the Workhouse, one is tempted to let them remain in peace, but they are often made the excuse for the occupation of other cellars by families, an excuse which is not accepted, for where young children are concerned our duty as regards cellar dwellings is very clear.

Good progress has been made in the City Surveyor's scheme for raising the level of a portion of the Dolemeads and the erection of 40 small houses above flood level to replace the 17 artizans' dwellings demolished during the construction of the river wall and ten other cottages. The Local Government Board has sanctioned a loan of £10,500, but it will probably take two years to complete the work.

Under Part II. of the Housing of the Working Classes Act, 1890, sixteen houses have been certified as unfit for human habitation because the work required to be done could not well be specified under the Public Health Act of 1875, although in many cases the defects could be easily and completely removed. One house had only been built a few years, but the back yard had been covered in by glass, thus interfering with the ventilation of the living rooms ; the walls were of six-inch ashlar, and were in some rooms covered with mould. I was supported in my views as to the house being unfit for human habitation by two other medical men, and the Committee sanctioned an applica-

tion for a Closing Order, but the application was deferred on the owner making some alterations, and the walls appear drier. I hope that proper Building Byelaws will be soon available so that the building of such houses may be prevented.

Under Part I. of the Housing of the Working Classes Act the following reports have been made :—

Housing of the Working Classes Act, 1890.

Representation by the Medical Officer of Health concerning certain Courts and Houses communicating with Lampard's Buildings, Walcot, Bath.

To the Chairman,

Housing of the Working Classes Committee,

Bath Urban Sanitary Authority.

Sir,

In compliance with the requisition signed by 12 householders, I have made an inspection of Lampard's Buildings and Courts, and of Mount Pleasant, to ascertain if this locality is an unhealthy area.

Lampard's Buildings is a street running almost due north and south between Julian Road and the junction of Mount Pleasant with Lansdown Road. It has a roadway, 25 feet wide, leading up from Julian Road, and rising some 50 feet, and terminating in three narrow covered passages. On the west side there are thirty houses, 27 of which were occupied at the time of this inspection by 155 persons. These houses are generally out of repair, only two have an intercepting trap between the drain and the sewer, the walls are mostly of 6-inch ashlar, with foundations in blue clay, and no damp course. The upper sashes of the windows are fixed in nearly all. Many of the roofs have no eave shutes, and where these are provided the down pipes discharge some inches above the pavement, and the rain water has to find its way as best it can to the grating near the Julian Road. These houses are therefore more than usually exposed to damp from above as well as from below, and the death returns show the death-rate from phthisis to be twice, and the death-rate from bronchitis to be three times as great as for the whole of Bath. The death-rates were properly corrected for the age and sex groups of the population.

On the east side of Lampard's Buildings we have the following :—

Turner's Buildings,	2	Cottages,	12	persons.
Viner's Court,	11	,,	54	,,
Edward's Place,	4	,,	12	,,
St. John's Place,	5	,,	12	,,
Spencer's Court,	3	,,	7	,,
Lampard's Place,	3	,,	14	,,
Woolcott's Court,	3	,,	9	,,
	—	,,	—	
	31		120	

Nearly all these cottages have the general defects of the larger buildings on the west side, and are built back to back, and side to side with similar houses, warehouses or stables. The rooms are small, and the sanitary arrangements defective. They are so dilapitated that unless they are demolished they will probably fall down in a few years.

To refer more particularly to ten of the cottages in Viner's Court (excluding No. 7). These were originally two roomed, but the upper room has been divided in two by a wooden partition ; the smaller of the two has a capacity of about 370 cubic feet, and is very badly lit and ventilated, an open space, from 7 to 15 inches in height, over the door serving the double purpose of illumination and ventilation. In such cabins as this two or three children sleep in six of the cottages As regards water supply, one tap has to supply the wants of 54 persons. The W.C.'s are in the front garden, one being common to two houses, they are fully exposed to view, and are difficult of access by night and in bad weather. This leads to the retention of excrement in vessels in rooms, which are otherwise filthy, and in times of sickness, lessens the poor chance of a patient's recovery. The three rooms are connected directly one with the other, so there is but one atmosphere, and a sickly odour pervades the dwelling A small plot of garden in the front gives an air of comfort, which has probably saved the property from earlier demolition. The walls of these cottages are in my opinion dangerous, and I do not think there can be two opinions as to how they should be dealt with.

Edward's Place, Lampard's Place, and Woolcott's Court, are of the worst type, the width of these courts being from 3 to 5½ feet, a circumstance of itself sufficient to condemn them, as the narrowness, closeness, and bad arrangement of the courts are dangerous or injurious to health. The back to back cottages are also generally dilapidated, dirty, ill-ventilated, and

with bad sanitary arrangements. St. John's Place and Spencer's Court are not so bad, but should certainly be included in any general scheme.

The upper end of Lampard's Buildings needs special notice. No. 29 consists of two rooms on the ground floor; above this is No. 30, likewise two rooms, the front one being entered from steps between Lampard's Buildings and Mount Pleasant. Above No. 30 is No. 9, Mount Pleasant, which is entered from the high level road. We thus have three freehold houses on one basement. They are owned by one person. On a level with No. 30 is a wash-house, intended for the joint use of the tenants of 29 and 30, Lampard's Buildings, and 8, Mount Pleasant. This wash-house contains within its walls a gully, which is used as a urinal by the general public; in one corner a water-closet, which is unscreened by a door, and has no separate window or external ventilation; in another corner the cistern supplying drinking water to 3 houses, opposite to this the boiler for the washing of 3 families, and by the window a long stone seat, on which tramps pass the night occasionally. All this within a stone's throw of some of the best property in Bath.

Mount Pleasant runs almost due west from the north end of Lampard's Buildings, and falls nearly 20 ft. in a distance covered by eight houses, No. 8 to 14, with a population of 41 persons. No. 8, Mount Pleasant, is situated over the steps leading up from Lampard's Buildings; No 9 is above 30, Lampard's Buildings; No. 10 has the open space of 28, Lampard's Buildings behind it; but No. 11 is back to back with No. 15, which has an entrance in Back's Passage. Nos. 12, 13 and 14, are wedged together like segments of a quadrant.

Full particulars concerning each house have been given in Mr. Craven's report. As the result of my inspection, I feel justified in representing the courts in connection with Lampard's Buildings, as named above, Nos. 28, 29 and 30, Lampard's Buildings, and the south side of Mount Pleasant to be an unhealthy area within the meaning of the Housing of the Working Classes Act, 1890. I think it quite possible to deal with the houses Nos. 2 to 27, Lampard's Buildings, so as to render them more fit for human habitation, by ordinary notices served under the Public Health Acts.

I remain, your obedient servant,

W. H. SYMONS,

Medical Officer of Health,
Bath.

Oct. 14th, 1898.

Housing of the Working Classes Act, 1890.

CLERK'S REPORT AS TO PROCEDURE TO BE ADOPTED BY THE URBAN SANITARY AUTHORITY UPON A REPRESENTATION MADE BY THE MEDICAL OFFICER OF HEALTH, UNDER PART I SECTION 5, OF THE ACT WITH REGARD TO

LAMPARD'S BUILDINGS,

AND ADJACENT COURTS, WALCOT, BATH.

The Medical Officer of Health having made a representation to the Authority under the provisions of Section 5 of the Housing of the Working Classes Act, 1890, upon the requisition of 12 persons liable to be rated to the local rate, a copy of which report has been delivered to each member of the Committee, it becomes the duty of the Authority to take such representation into consideration, and if satisfied of the truth thereof, and of the sufficiency of their recourses to pass a resolution to the effect that such area is "an unhealthy area," and that an improvement scheme ought to be made in respect of such area, and after passing such resolution, to forthwith proceed to make a scheme for the improvement of such area.

The Act points out in detail the course to be pursued by the Authority, in the event of its coming to the conclusion that the district named is "an unhealthy area" within the meaning of the Act.

In the event of the Authority failing to pass any resolution on such representation, or passing a resolution to the effect that they will not proceed with such scheme, the Authority must send a copy of the representation, accompanied by their reasons for not acting upon it, to the Local Government Board, and the Board may hold an enquiry thereon.

Section 7 of the Housing of the Working Classes Act, 1885, which is not repealed by the Act of 1890, provides that it shall be the duty of every local Authority entrusted with the execution of laws relating to Public Health and Local Goverment, to put in force from time to time, as occasion may arise, the powers with which they are invested, so as to secure the proper sanitary condition of all premises within their district.

Upon the scheme being sanctioned by Parliament it becomes the duty of the Authority to acquire the land comprised in the area, and carry such scheme into effect as soon as practicable, and the Act gives ample powers to the Authority for that purpose.

This may be done by (*a*) selling or letting the whole or parts of the area subject to conditions as to nature, quality, and position of buildings; (*b*) by arrangement with trustees Society, or persons to carry out the scheme ; (*c*) erecting houses which must be sold within 10 years, unless the Local Government Board otherwise determine ; (*d*) or by arranging with the owner of the first estate of freehold to carry out the scheme.

The Act gives power to the Authority to purchase the lands required compulsorily for the purpose of carrying out the scheme, and upon such purchase the compensation payable is fixed upon the fair market value, having regard to the nature, condition, probable duration and repair of the premises, and without any addition for compulsory purchase, and without regard to any additions or improvements made after public notice of the scheme.

Evidence may be given to show that the rentals of any houses included in the area are enhanced by reason of the same being used for illegal purposes, or being overcrowded—that the premises are in such a state as to be a nuisance—are in a state of defective sanitation, or are not in reasonably good repair, or are unfit and not reasonably capable of being made fit for human habitation, and in the event of the Arbitrator being satisfied with such evidence then the compensation is to be fixed, having regard to such circumstances upon the terms set out in the Act.

If the area is not considered by the Authority to be an unhealthy area within meaning of the Act, the reasons for such opinions should be set out in any resolution passed to that effect, and it should be shown how the evils pointed out by the Medical Officer of Health can be otherwise dealt with.

In considering this question, it will be necessary to refer to the provisions of Part II. of the same Act, which gives the Authority power to deal with unhealthy dwelling-houses within the District. Under this part of this Act it is the duty of the Medical Officer of Health to represent to the Authority any dwelling-house which appears to him to be in a state so dangerous or injurious to health as to be unfit for human habitation. Any four householders in or near any street may complain in writing to the Medical Officer of Health that any dwelling-house in or near such street is unfit for human habitation. He shall then inspect and transmit to the Authority the complaint and his opinion thereon. If within three months from the receipt of such complaint and opinion, the Authority neglects to take proceedings under this part of this Act, the parties

complaining may apply to the Local Government Board who shall cause an inquiry to be held and take other proceedings.

It shall be the duty of the Authority from time to time to cause an inspection to be made of their district, and if any dwelling-house appears to them to be in such a state to take proceedings under the Act, to procure an order for closing it, and if not put in a proper state by the owner to cause it to be demolished. It is entirely for the Committee to determine under which part of this Act proceedings shall be adopted for the purpose of amending the state of things found by their Medical Officer of Health, and it is probably well that I should call to the mind of the Committee that for some years past this neighbourhood has been before the Council upon the question of carrying out a street improvement, which if carried out would render it necessary to take down several of the Courts mentioned in the Medical Officer of Health's Report.

F. H. MOGER,
Clerk.

Dated 7th November, 1898.

Housing of the Working Classes Act, 1890.

SCHEME FOR PROPOSED IMPROVEMENT OF AN UNHEALTHY AREA, LAMPARD'S BUILDINGS.

GUILDHALL, BATH ;
September, 1899.

To the Chairman and Members
of the Housing of the Working Classes Committee.

GENTLEMEN,

At your meeting on the 13th April, 1899, the following resolution was passed :—

> "The Surveyor be instructed to make a report and estimate showing the cost of carrying out the Improvement Scheme and Improvement of the Streets in separate amounts ; also the probable cost of building the houses in the event of the Council wishing to do so."

Acting in accordance therewith, I beg to present the following for your consideration :—

(A) The area affected by the Scheme is 0·8048 acre, and comprises the following dwelling-houses :—

(*a*) Within the Unhealthy Area of 0·4992 acre referred to in the Official Representation.

(1) On the west-side of Lampard's Buildings Road.

	Houses.	Occupants.
Nos. 28 to 30, Lampard's Buildings	3	12
Nos. 8 to 15, Mount Pleasant ...	8	41
(2) On the east-side of Lampard's Buildings Road.		
Nos. 1 and 2, Turner's Buildings ...	2	12
Nos. 1 to 11, Viner's Court ...	11	54
Nos. 1 to 4, Edward's Place .	4	12
Nos. 1 to 5, John's Place	5	12
Nos. 1 to 3, Spencer's Court ...	3	7
Nos. 1 to 3, Lampard's Buildings ...	3	14
Nos. 1 to 3, Woolcott's Court ...	3	9
	42	173

(*b*) Within the area of 0·3056 acre, included under Section 6 (1) (*a b*) of the Act for the efficient carrying out of the Scheme, and for street widening and improving.

(1) On the west-side of Lampard's Buildings Road.

	Houses.	Occupants.
Nos. 24 & 27, Lampard's Buildings, and 2 cottages at rear of No. 24 ...	4	32
No. 25, Ballance Street	1	9
(2) On the east-side of Lampard's Building's Road.		
No dwelling-houses.	—	—
	5	41

These areas in addition to dwelling-houses include various yards, stables, workshops, passages, and rights of way, and also in Sec. (*b*) the old Morford Brewery premises and paint stores adjoining it which will be required in order to provide dwellings for the working classes displaced, and part of 2, Julian Road required for the widening of approach from Julian Road.

The houses in Section (*a*) of the area being all more or less unhealthily situated in narrow ill-ventilated courts, placed back to back without open space; insanitary; badly constructed and arranged or dilapidated and with small rooms, having low ceilings and deficient ventilation or lighting, have been officially represented to the Authority by the Medical Officer of Health as forming an unhealthy area within the meaning of the Housing of the Working Classes Act, 1890, and it is proposed by the Improvement Scheme to pull them down, clear the site,

and after improving the existing street by widening it to 30 feet throughout; opening out the present built-in top portion; cutting a road from 23 to 13 feet wide through into Mount Pleasant, slightly widening the latter; building retaining and fence walls, and improving the gradients somewhat of both Lampard's Buildings Road and Mount Pleasant; to erect or allot the land to be acquired for the erection of 36 new houses, providing varying accommodation for the persons displaced by the Scheme.

Apart from the insanitary and structural conditions of the houses, it will be necessary to acquire and remove Nos. 28, 29 and 30, Lampard's Buildings, Garden at rear of Nos. 18, Lansdown Road, and Nos. 8, 9, 10, 11, 12, 13, 14 and 15, Mount Pleasant, for the purpose of constructing a roadway into Mount Pleasant, and part of No. 2, Julian Road to enable the entrance of approach road from Julian Road to be widened to 30 ft.; and the cost of purchasing and demolishing these, of widening and constructing roads and paths and improving the gradients, it is thought should be dealt with as a street improvement scheme. I have therefore in accordance with your resolution in preparing my estimate, kept the cost of these separate from the remainder of Scheme.

It will have been seen from the foregoing that 47 dwelling houses are proposed to be demolished which at present afford accommodation for 214 persons.

The Improvement Scheme provides for the erection of 36 buildings, affording habitation for 40 families, or a total of about 176 persons.

16	cottages for 4 persons... ...	64
14	,, 6 ,, ...	84
4	double tenements for 4 persons	16
2	houses for 6 persons	12
36		176

Each of these will have separate offices and conveniences, a frontage on the widened street of 15 feet, and sufficient open space at the rear.

Certain of the houses in Morford Street have right of access to Lampard's Buildings, by way of the existing courts and passages, such as Viner's Court, Edward's Place, John's Place, Spencer's Court, Lampard's Place, and Woolcott's Court, and where loss is proved to be sustained by the extinction of such rights of way, if some arrangement is not come to with them by way of compensation under Section (22) of the Act, or other-

wise it may be necessary to provide access for them by leaving archway under the new houses, which would reduce the accommodation to some extent.

The number of sleeping apartments proposed to be provided in these new dwellings is 90 rooms with a gross floor space of 7,443 sup. feet (or an average of 82⅔ sup. feet per room), and a cubic capacity of 63,263 cubic feet, equally 359 cubic feet per head. The height of all habitable rooms will be 8 ft. 6 in.

(a) I estimate the cost of the street improvement works, including the purchase of property, at £2,153. I have had the assistance of the licensed appraiser appointed by the Committee in fixing the value of the properties.

(b) The cost of the Improvement Scheme including purchase of properties is £5,690.

(c) If the Local Government Board approve the course, and the Authority decide to proceed under Section 12 (5) of the Act, the cost of erecting the proposed cottages hereinbefore referred to, I estimate to be as follows :—

16	cottages, having living room, scullery, offices and 2 bedrooms..	at	£121	= £1,936
14	Ditto parlour, kitchen, scullery, offices, and 3 bedrooms ..	at	£189	= £2,646
4	double tenement houses with living and bedroom, scullery and w.c on each floor, with separate access to street	at	£191	= £764
1	detached house having parlour, kitchen, scullery, offices, and 4 bedrooms	at	£222	= £222
1	Ditto ditto	at	£252	= £252
36				£5,820

Summarizing the cost of the proposed works will be :—

(a) Street Improvement Works, and cost chargeable to such	£2,153
(b) Purchase of Properties. clearing and preparing Building Sites under Improvement Scheme ..	£5,690
(c) Cost of erecting Cottages	£5,820
	£13,663

Against this outlay if the Authority themselves erect and for a time retain possession of the cottages, I estimate there will be receivable :—

Net Annual Value of Rents .. £288

If the site when cleared is let for building there should be an Annual Ground Rent Charge apportioned over the whole of £75.

C. R. FORTUNE.

September 21st, 1899.

To the Mayor, Aldermen and Citizens of the City of Bath,
To the Inhabitants of the said Borough,
And to all others whom it may concern.

WHEREAS the MAYOR, ALDERMEN, and CITIZENS of the City of Bath have presented a Petition to the Local Government Board under the HOUSING OF THE WORKING CLASSES ACT, 1890, for the issue of a Provisional Order to confirm an Improvement Scheme made by the said Mayor, Aldermen and Citizens under the said Act, and to declare the limits of the area comprised in the Scheme, and to authorise its being carried into execution :

AND WHEREAS the area to which such Scheme relates consists of the following Streets and other places, or parts thereof, viz. : Lampard's Buildings, Mount Pleasant, Turner's Building's, Viner's Court, Edward's Place, John's Place, Spencer's Court, Lampard's Place, and Woolcott's Court, together with three additional plots of land, namely, the plot situate on the west side of Lampard's buildings and comprising Morford Brewery and house, No. 2, Julian Road, the plot of land also situate on the west side of Lampard's Buildings aforesaid, and comprising a yard belonging to No. 1, Belvedere Place, and a yard belonging to No. 18, Lansdown Road, and the plot of land situate on the east side of Lampard's Buildings aforesaid, and comprising Nos. 24, 25, 26 and 27, in Lampard's Buildings, and No. 25, Ballance Street ; and such area is situated wholly within the said City :

AND WHEREAS I, E. A. SANDFORD FAWCETT, ESQUIRE, A.M.I.C.E., one of the Inspectors of the Local Government Board, have been appointed by the said Board to hold a Local Inquiry for the purpose of ascertaining the correctness of the official representation made to the said Mayor, Aldermen, and Citizens as to the said area being an unhealthy area, and also of investigating the sufficiency of the Scheme provided for the improvement of such area, and any local objections to be made to such Scheme :

NOW I, the said E. A. SANDFORD FAWCETT, DO HEREBY GIVE NOTICE that I will attend at the GUILDHALL, BATH, on MONDAY, the Twelfth Day of FEBRUARY, 1900, at Two o'Clock in the Afternoon, for the purpose of holding such Inquiry, and will then hear all persons who are desirous of being heard before me upon the subject of the said Inquiry :

AS WITNESS my hand this 29th day of January, 1900,
at the Office of the Local Government Board, London,

E. A. SANDFORD FAWCETT,
Inspector of the Local Government Board.

The Local Government Board Inquiry was held on February 12th, 1900, but the result of the inquiry is not yet known.

Meteorology.

We may now be considered well supplied with meteorological instruments, for we have five fully equipped climatic stations and three extra rainfall stations, at which observations are taken daily. The results are given in two tables for the past year, and the original charts are sent monthly to the secretary of the Royal Meteorological Society for him to extract such particulars as he requires. The following additional apparatus have been purchased during the year. Dine's pressure-tube Anemometer for recording automatically the velocity of the wind. This is mounted on the flagstaff on the dome of the Guildhall about 112 feet above the level of the pavement, or 200 feet above sea level. Mr. R. Curtis, of the Royal Meteorological Office, was kind enough to visit Bath and advise me as to the best position for this instrument. Its records show that the atmosphere of Bath is not by any means stagnant, a velocity of 30 to 40 miles an hour is often recorded. A Robinson's Cup Anemometer has also been purchased for measuring the movement of the air at street level. This will probably be fixed in Henrietta Park, at the Central Climatic Station. The Campbell-Stokes Sunshine Recorder is on the dome of the Guildhall, and the results are published with my fortnightly returns, compared with those of Greenwich, and also exhibited daily at the entrance of the Pump Room. A Kew-pattern Mercurial Barometer has been placed in my office, the readings are taken daily at 9 a.m. by Mr. Craven, and at 6 p.m. by the advertising manager, who sends his readings to a large number of papers. A Richard's Barograph, showing a rise or fall of two inches for each inch of the mercurial barometer, also continuously records the pressure. The head master of Kingswood School, Lansdown, W. P. Workman, Esq., M.A., B.Sc., is kind enough to send me every week the chart of his barograph which records the pressure at his laboratory, which is about 550 feet above my office. We also have solar radiation thermometers at Henrietta Park Station, and seven four-foot earth thermometers at different stations; five of these are read daily and two will be read on Wednesdays only. The mean daily range of the four-foot earth thermometer is less than half a degree F.; the greatest weekly range for 1899 was 2·8° F. during the week ending Saturday, December 16th. The readings taken on Wednesdays were within half a degree of the true weekly mean. The readings of the four-foot earth thermometer have great importance in relation to disease, and on page 45 will be found a copy of a chart on

which are recorded the rainfall, maximum and minimum air and earth temperatures, and the number of deaths at various age periods for each week of the year.

I am sorry I did not include in my estimates a self-registering rain gauge, as it would be interesting to know the exact time at which rain fell, as well as for the twenty-four hours ending 9 a.m.; the instrument can be purchased for about £10 10s. During the past twelve-months I have had one of Messrs. J. Beck and Co.'s clock-dial rain gauges in my garden between two other gauges and have carefully compared results. The clock-dial gauge has required no attention, except after snow storms, and its readings have been invariably the same as those of the Snowdon rain gauge. The figures on the dial are sufficiently distinct to be read at a distance of a 100 feet or more with the aid of a small telescope, and the results of a heavy shower can be noted from the house. Messrs. Beck also make an electrically recording rain gauge, the recording cylinder being any distance away from the gauge, and as the rain ultimately passes into a reservoir it can be measured in the usual way as well as by the self-recording chart.

In concluding my Report, I beg to thank the members of the Urban Sanitary Authority for their courtesy and consideration, and for the ready way in which they have accepted most of my suggestions and acted upon them.

I remain,

Their obedient servant,

W. H. SYMONS,

Medical Officer of Health.

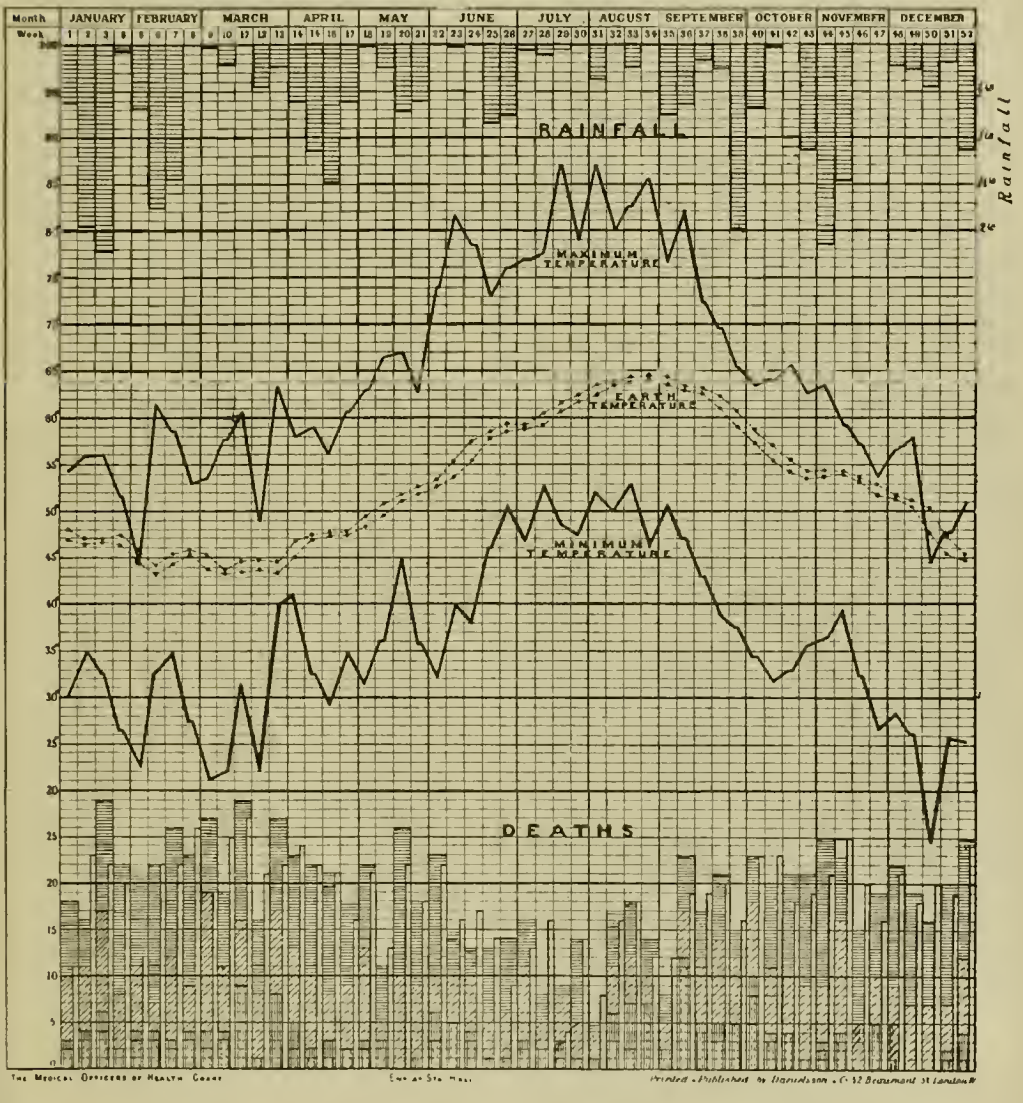
Guildhall, Bath,
February 28th, 1900.

CENTRAL CLIMATIC STATION BATH.

North Latitude, 51° 23′ 8″ West Longitude, 2° 21′ 14″ Elevation, 70 feet above Ordnance Datum.

CHART

Showing Air, & 4 ft. Earth Temperatures, and Rainfall for the Year 1899.



Notes

The death columns are shaded from below up to show age periods :—

Under 1, 1—5, 5—60, and over 60 years.

Bath Climatic Station, Henrietta Park.

SUMMARY OF METEOROLOGICAL OBSERVATIONS FOR THE YEAR 1899.

Estimated Height above Sea Level : Barometer, 103 feet ; Thermometer, 74 feet.

1899.	Barometer (Roy. Literary & Scientific Institution.						Thermometers in Stevenson Screen.										Earth Temperatures.			
	Mean at 9 a.m. corrected to 32°.	Absolute Max. Corrected.	Day of Month	Absolute Min. Corrected.	Day of Month	Range.	Mean Temp. of Air.	Mean of Maximum.	Mean of Minimum.	Absolute Maximum.	Day of Month	Absolute Minimum.	Day of Month	Mean of Dry Bulb.	Mean of Wet Bulb.	Relative Humidity	4 Foot. Max.	4 Foot. Min.	4 Foot. Mean.	1 Foot Mean.
Jan....	29·835	30·696	26	28 977	2	1·719	43·5	48·9	37·6	56·0	15	26·5	25	42 0	39·8	83	48·0	45·0	46·6	
Feb....	29·882	30·734	28	29·163	10	1·571	43·4	50·3	36·4	61·5	10	21·0	28	41·2	38·7	81	45·7	43·3	44·7	41 7
Mar.	30·131	30·740	1	29 108	9	1·632	41·9	51·0	33·4	60·5	14-15-16	22·0	3-7-22	41 4	39·1	81	44·7	43·4	43·9	42·2
April	29·863	30·288	5	29·028	14	1·260	47·4	54·1	41·3	63·5	1	29·2	17	46·9	42·8	72	48 1	44·6	46·9	48·4
May...	30·039	30·504	28	29·423	15	1·081	51·5	60·7	43·4	69·8	31	31·5	4	52·7	48·8	74	52·8	48·3	51·0	54·1
June	30·096	30·577	9	29·346	20	1·231	59·9	71·7	49·7	81·5	5	38·0	14	63·4	57·5	68	59·0	53·0	56 8	62·6
July...	30·095	30·442	31	29·540	1	·902	64·1	74·3	55·5	87·0	20	46·8	5	65 6	59·8	69	62·6	58·8	60·5	66·2
Aug.	30·100	30·412	1	29·644	4	·768	65·6	78·0	54·6	87·0	3	46·0	22	68·8	62 1	66	64·4	62·7	63·9	68·5
Sept.	29·901	30·254	11	29·277	30	977	58·5	66·9	50·9	82·0	5	37·8	28	59·4	55·2	75	63·8	59 0	62 1	61·1
Oct...	30·069	30·430	22	29·191	1	1·239	49·6	59·2	40·5	65·5	17	31·8	8	47·7	46·3	89	58·7	53·8	57·0	51·1
Nov.	30·191	30·717	17	29·453	10	1·264	48·6	54·5	42·7	63·5	4	26·5	19-20	47·8	45·5	82	54.4	51·5	53·1	49·3
Dec....	29·916	30·610	20	28·538	29	2·072	37·0	43·1	30·5	58·0	6	14·2	16	36·7	35·3	87	51·4	44·8	47·8	40·2
	360·118						611·0	712·7	516·5					613·6	570 9	927	653·6	608·2	634·3	
	30·01						50 9	59·4	43·0					51·1	47·6	77	54·4	50·7	52·9	

MONTHLY RAINFALL AT VARIOUS STATIONS, 1899.

AVERAGE OF 33 YEARS (Bath Royal Literary and Scientific Institution), 1866-98.

Observations 9 a.m. Daily, at all Stations. 1899.	Bath Climatic Station, Henrietta Park. N. Latitude, 51° 23′ 8″ W. Longitude 2° 21′ 14″ 5 in. Gauge. O.D. 70 ft.				Bath Royal Lit. and Sci. Institute N. Lat. 51° 22′ 52″ W. Long. 2° 21′ 21″ 6″ Gauge. O.D. 74 ft.		Statutory Hospital. N. Latitude, 51° 21′ 52″. W. Longitude, 2° 19′ 10″. 5″ Gauge. O.D. 520 ft.	Kingswood School. N. Latitude, 51° 23′ 27″ W. Long., 2° 22′ 6″ 5″ Guage. O.D. 620. ft.	Combe Park. N. Lat. 51° 23′ 31″ W. Long. 2° 24′ 13″ 5″ Gauge. O.D. 165 ft.	Monkswood. N. Lat. 51° 26′ 19″ W. Lon. 2° 21′ 16″ 5″ Gauge. O.D. 363 ft.	Batheaston. N. Lat. 51° 24′ 53″ W. Lon. 2° 19′ 51″ 5″ Gauge. O.D. 248 ft.	Charlcombe. N. Lat. 51° 23′ 49″ W. Lon. 2° 21′ 37″ 8″ Gauge. O.D. 325 ft.
	Rain and Snow. Total depth in inches.	Number of Days on which Rain fell.	Greatest fall in 24 hours. Depth.	Date.	1866 to 1898.	1899.	1899	1899	1899	1899	1899	1999
January ...	5·03	22	·75	20	2·82	5·03	6·27	4·54	5·22	4·36	4·30	4·97
February	3·76	14	·78	15	2·19	3·76	3·51	3·60	3·87	3·47	3·61	3·56
March	0·94	7	·38	25	1·97	0·92	·82	0·63	0·79	·82	0·54	0·62
April	3·87	19	1·08	20	1·99	3·76	...	3·18	3·27	2·86	3·28	3·27
May	1·61	12	·36	19	2·03	1·64	2·29	1·74	1·69	2·09	1·72	1·67
June	1·64	6	·62	28	2·14	1·67	2·13	1·85	1·71	1·79	1·67	1·86
July	0·27	5	·07	2	2·70	0·22	0·33	0·39	0·42	0·48	0·32	0·35
August	1·22	8	·37	3	2·83	1·03	1·06	1·20	1·22	2·16	1·31	1·15
September	3·26	17	·93	26	3·03	3·55	3·54	3·60	3·56	3·09	3·15	3·64
October... ...	2·43	9	·58	27	3·16	2·29	2·57	2·61	2·53	2·91	2·49	2·35
November	3·07	9	1·06	3	2·93	2·98	2·88	3·24	3 30	3·14	3·01	3·17
December ...	2·19	16	·59	28	2·96	2·20	2·38	2·35	2 34	2·28	2·14	2.25
	29·29	144			30·76	29·05		28·93	29·92	29·45	27·54	28·86

Sanitary and General Inspector's Report for Year ending December 31st, 1899.

505 Nuisance from Drains, etc., abated by Structural Works

52 Other Nuisances abated without Structural Works.

97 Premises Cleansed and Whitewashed after Notice.

21 Accumulations of Manure removed after Notice.

5 Smoke Nuisance abated after Notice.

28 Overcrowding Nuisance abated after Notice.

4 Nuisance from Keeping of Pigs abated after Notice.

5 Samples of Water tested and found impure.

6 Premises Inspected previous to Registration under Dairies Act.

2 Selling Milk in Contravention of Dairies Act.

8 Water Supply for Domestic Purposes disconnected from w.c. cistern.

6 Nuisance in Slaughter Houses abated after Notice.

47 Accumulation of Ashes in Houses and Yards removed after Notice to Surveyor.

750 Premises inspected.

144 Samples obtained under Food andDrugs Act.

Genuine, 139. Not Genuine, 5.

1 Milk adulterated with Boracic Acid
2 Milk Vendors fined £1 and costs.
1 Milk Vendor fined £2 and costs.
1 Milk Vendor fined £4 including costs.

One Unsound Carcase of Cow seized by Inspector, and destroyed by Magistrates' Order, and the Owner imprisoned One Month.

House to House Inspections have taken place as follows :— Milk Street, Somerset Street, Margaret's Passage, The Ambury, Abbey Green, Peter Street; also Inspections at The Statutory Hospital, Dairies, Canal Boats, Common Lodging Houses, Hackney Carriages, Wheel Chairs, etc.

Statutory Hospital Report.

There has been 81 admissions to the above Hospital during the year, consisting of

60 Scarlatina and 21 Diphtheria Cases

Of these 46 Scarlatina and 14 Diphtheria were from the Urban District.

Admitted from Rural District,

11 Scarlatina and 10 Diphtheria.

Deaths during the year :—

Urban Cases.	Rural Cases.
2 Diphtheria.	Nil.
1 Scarlatina.	Nil.

H. GRAHAME MONTAGU,

Chief Sanitary and General Inspector.

Municipal Offices,
Bath.

BATH URBAN SANITARY DISTRICT.

Legitimate. M. 483 F. 482

BIRTHS.
TOTAL REGISTERED, 1020

Illegitimate. M. 31 F. 24

Deaths registered from all Causes during the Year 1899, classified according to Diseases, Sex, Ages and Sub-Districts.

	Under 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 60		60 to 65		65 to 75		75 to 80		80 to 85		85 and over		WC		LW		BK		NR		M.	F.	P.
																											WALCOT & CITY.		LYNCOMBE & WIDCOMBE.		BATHWICK.		Non-Resident.		BATH.		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Male.	Female.	Total.
I. Specific Febrile or Zymotic Diseases																																			
1. Notifiable...		1	2	2	2	1	1	1	1	3	1	3		3	...		...		1		1		...		...		4	9	3	3		1	1	2	8	15	23
2. Non-notifiable	14	19	3	8		1	2		1		3	1	1	3	1	4	3	1	5	13	3	7	3	6	2	8	25	44	10	19	4	6	2	2	41	71	112
II. Parasitic Diseases		1	...		...		...		...		...		...		...		...		...		...		...		...			1		...		...		...	...	1	1
III. Dictic Diseases	...		...		...		...		...			1	1		...		...		...		...		...		...		1	1		1		...		1	2	3
IV. Constitutional Diseases	7	7	7	5	6	4	10	6	14	10	9	12	13	20	3	11	13	10	9	19	4	1	2	4	1	1	67	66	21	28	3	6	7	10	98	110	208
V. Developmental Diseases	16	15	...		...		...		...		...		...		...			1	2	5	2	5	6	6	2	12	21	25	5	17	1	1	1	1	28	44	72
VI. Local Diseases	23	15	15	8	7	5	4	7	13	9	21	17	24	22	10	24	19	17	48	57	20	40	13	29	6	20	149	185	42	42	7	22	25	21	223	270	493
VII. Deaths from Violence	3			2	2	1	1		2		3	1	2	2	4		1		1	1	2	1	1	1	...		10	5	5	2	1		6	2	22	9	31
VIII. Deaths from Ill-Defined Causes	10	3	...		...		...		...			1	1	1		1	...		...		...		...		1		8	4	1	2	2		1		12	6	18
	73	61	27	25	17	12	18	14	31	22	37	36	42	52	18	40	36	29	66	95	31	55	25	46	12	41	285	340	87	114	18	36	43	38	433	528	961

I. Specific Febrile or Zymotic Diseases	Under 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 60		60 to 65		65 to 75		75 to 80		80 to 85		85 and over		WALCOT & CITY.		LYNCOMBE & WIDCOMBE.		BATHWICK.		Non-Resident.		BATH.		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Male.	Female.	Persons.
1. Miasmatic Diseases.																																						
Small Pox	...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...	...	...
Measles	1	2	1	3	...		...		...		...		...		...		...		...		...		...			2	2	3	..		..		2	5	7
Scarlet Fever	..		.		...		...		...		...		...		...		...		...		...		...		..		...		...		...		...	...	...
Influenza	...		1	1	...		2		1		2	1	1	2	1	3	2	1	3	9	3	6	3	6	2	8	15	24	2	5	3	6	1	2	21	37	58
Whooping Cough ...		1	1	1	...		...		...		...		...		...		...		...		...		...		..		...		1	2	...		...		1	2	3
Diphtheria and Membranous Croup..		1	2	2	1		...			1	...			1	..		. .		...		...		...		...		1	2	2	3	...		...		3	5	8
Enteric or Typhoid Fever ...	...		...		1	1	1	1		2	1	1	...		...		...		...		...		...		1	4	1		...		1	1	3	5	8
2 Diarrhœal Diseases.																																						
Diarrhœa	9	10		1		1	...		...		...		...		...		...		1	3		1	...		...		5	9	4	7	..		1		10	16	26
Gastro-enteritis	3	5		2	...		...		...		1		...		...		...		...				...		...		4	5		2	...		..		4	7	11
3. Malarial Diseases	...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		..		...	...	...
4. Zoogenous Diseases	...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...		...	...	..
5. Venereal Diseases	...		...		...		...		...		...		...		...		...		...		..		...		...		...		...		...		...		...	...	...
Syphilis Hereditary	1	1	...		...		...		...		...			1	...		...			1	...		...		...		1	3	...		..		...		1	3	4
Gonorrhœa, Stricture of Urethra ...	...		...		...		...		...		...		...		..		...		...		...		...		..		...		...		...		...		...	...	...
6. Septic Diseases.																																						
Erysipelas	...		...		...		...		1		...			2	...		...		1			1	...		...		2	2	...		...			1	2	3	5
Septicæmia	...		...		...		...		...			1	...			1	1		1		...		...		...			2	1		1		...		2	2	4
Puerperal Fever	...		...		..		...		...			1	...		...		...		...		...		...		...		...		...			1	...		...	1	1
	14	20	5	10	2	2	3	1	2	3	4	4	1	6	1	4	3	1	6	13	3	8	3	6	2	8	29	53	13	22	4	7	3	4	49	86	135

	Under 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 60	60 to 65	65 to 75	75 to 80	80 to 85	85 & over	WC	LW	BK	NR	BATH. M	BATH. F	BATH. P
II Parasitic Diseases																				
Thrush	1	...	...	...	...	...	..	...	...	...	...	...	...	1	...	...	...	...	1	1
III. Dietic Diseases																				
Want of Breast Milk, Starvation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
Chronic Alcoholism	...	...	...	...	...	1	1 1	...	...	...	...	...	...	1 1	1	...	...	1	2	3
	...	...	...	..	...	1	1 1	..	...	...	...	...	...	1 1	1	...	...	1	2	3
IV. Constitutional Diseases																				
Rheumatic Fever	...	...	1 1	...	...	...	..	...	...	...	...	...	...	1 1	...	...	...	1	1	2
Rheumatism	...	...	1	...	...	1	..	...	...	...	.	.	...	1	...	1	...	..	2	2
Gout	...	...	...	...	...	...	1	1	..	1	1	1	...	2	1	1	1	3	2	5
Rickets	...	2	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	2
Cancer, Malignant Disease	...	...	...	...	2	1	4 11	1 9	10 9	6 17	2 1	2 3	...	12 29	10 16	2 5	1 3	55	53	78
Marasmus	4 3	1	...	...	...	...	...	...	...	...	...	...	..	3 3	1	...	1	5	3	8
Tabes Mesenterica	2 2	1	1	...	...	...	...	.	...	...	...	...	...	2 2	1 1	..	...	3	3	6
Tubercular Meningitis, Hydrocephalus	1 1	3	1 1	...	1	1	...	...	...	...	..	...	...	4 2	1	...	1 1	6	3	9
Phthisis	...	...	1	6 4	11 7	8 10	7 7	1 1	2 1	2	1	...	..	32 20	5 9	...	2 1	39	30	69
Other forms of Tuberculosis	1	2 3	3	3 1	2	...	1 2	...	...	...	...	...	...	6 5	3	...	2 2	11	7	18
Hoemophilia	...	...	...	1	...	...	..	...	..	...	...	...	...	1	...	...	...	1	...	1
Anæmia, Leucocythæmia	...	...	...	1	1	...	...	1	...	...	...	...	...	1 1	...	...	1	1	2	3
Diabetes	...	...	...	...	...	...	...	.	1	1 1	...	...	1 1	3 1	...	...	1	3	2	5
	7 7	7 5	6 4	10 6	14 10	9 12	13 20	3 11	13 10	9 19	4 1	2 4	1 1	67 66	21 28	3 6	7 10	98	110	208
V. Developmental Diseases																				
Premature Birth	12 11	...	...	...	...	...	...	...	..	...	..	...	...	8 5	4 6	..	...	12	11	23
Congenital Malformations	4 4	...	...	...	...	...	...	...	...	...	..	...	...	3 3	1 1	...	...	4	4	8
Old Age	...	...	...	..	...	..	...	...	1	2 5	2 5	6 6	2 12	10 17	10	1 1	1 1	12	29	41
	16 15	...	...	..	...	...	...	...	1	2 5	2 5	6 6	2 12	21 25	5 17	1 1	1 1	28	44	72

VI Local Diseases.	Under 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 60		60 to 65		65 to 75		75 to 80		80 to 85		85 & over		WC		LW		BK		NR		BATH.		
																																	M	F	P
1. Diseases of Nervous System.																																				
Inflammation of Brain or Membranes	1		2	1	1		...			1	...		..		...		...			1	1	1	...		...		4	2	...		1	1		1	5	4	9
Apoplexy, Softening of Brain ...	...		...		...		...		1		1		5	5	2	1	1	3	6	5	3	9	1	3	3	2	13	20	3	6	1	2	6		23	28	51
Hemiplegia, Brain Paralysis ...	..		.		...		...		...		...		1		2		1	2	1	1	2	4	1		...		4	3	1	1	2		1	3	8	7	15
Insanity, General Paralysis of Insane	..		...		1		...		...		...		...			1	...		1		...			1			1	1	1	1	...		...		2	2	4
Epilepsy...	...		...			1	...		...		..			2	...		...		2	1	1			1	...		3	2		1		1		1	3	5	8
Convulsions	9	6	4		1		...		...		...		...		...		..		...		...		...		..		9	6	3		2		...		14	6	20
Disease of Spinal Cord ...	...				..		...		...		1			1	...		...		2			1	..		...		2		1	2	...		..		3	2	5
Dentition Convulsions		1	...		...		...		...		...		..		...		...		..		..						...			1	...		...		...	1	1
2. Diseases of Organs of Special Sense (Ear)	...		...		1	1	1		...		...		...		...		...		..		...		...				...		...		...		2		2	1	3
3. Diseases of Circulatory System.																																				
Pericarditis	1		...		...		...		...		...		...		...		..		...		...		...		..		1		...		...		...		1	...	1
Acute Endocarditis	...		..			1		4	..		...		1		...		...			1	...		...		...		1	4		1	...			1	1	6	7
Valvular Diseases of Heart	...		...			1	1		...		1		...			3	1			1	1		1		..		3	4	2			1	...		5	5	10
Other Diseases of Heart ...	1		...		...		1	2	2	1	4	1	4	4	2	7	5	7	16	13	2	12	3	8	1	7	26	43	9	7		6	6	6	41	62	103
Diseases of Blood Vessels, Gangrene	..		...		1		...		2		1	1	...			2	..		1	1	12		...		...		4	4	1			1	1	1	6	6	12
Heart Disease and Bronchitis ...	...		...		..		1		...		...		...		...		...		2	3	...		1	1	..		2	4	2		...		...		4	4	8
4. Diseases of Respiratory System.																																				
Laryngitis	..			1	...		...		...		...		...		...		...		...		...		1		...			2	...		...		...		...	2	2
Bronchitis	4	3	2	2	...		...		...		1			1	1	3	4	2	5	11	3	6	3	4		6	18	31	4	6	1			1	23	38	61
Asthma	...		...		...		...		...			1	1	1	...		...			1	.		...		.		1	3	...		...		..		1	3	4
Pneumonia	2		4	4		1	...		3		6	5	3	3	1			2	1	6	1	1	2	2	...		17	12	4	7		4	2	1	23	24	47
Inflammation & Congestion of Lungs	..		...		...		...			1		1	...			1	...			1	...			2	...			3		2		1	...		...	6	6
Pleurisy	...		...		...		...			1	...		...		...		...		...		..		...				...		...		...			1	...		1	1
Bronchitis and Heart Disease ...	...		...		...		...		...		...		...		1		2		2	3	1	1	...			1	5	3	1	1		1	...		6	5	11
5. Diseases of Digestive System.																																				
Diseases of Stomach	1	2	1		...		...		...		1	2	1		...		...		1	1	1			1		1	6	6	...			1	...		6	7	13
Enteritis	1	2	1		...		...		...		1		...		...		...		...		...		...				3	1		1	...		...		3	2	5
Obstructive Diseases of Intestine ...		1	...		...		...			1	...			1		1	...			1	1	2	...			2	1	8	...		...			1	1	9	10
Peritonitis and Appendicitis ...	...		...		1		...		2			1	1	1	...		...		1		...		...		...		2	2	1		...		2		5	2	7
Cirrhosis of Liver	...		...		...		...		2			2	3			1	1	1	3	2	...		...		...		6	4	2	1		1	1		9	6	15
Other Diseases of Liver ...	...		...		...		...		..		1			1	...		...		..		..		...			1	1	1	...		...			1	1	2	3
	20	15	14	8	6	5	4	6	12	5	18	14	20	20	9	20	15	17	44	53	18	39	12	24	4	20	133	169	35	38	7	20	21	19	196	246	442

	Under 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 60	60 to 65	65 to 75	75 to 80	80 to 85	85 & over	WC	LW	BK	NR	BATH. M	BATH. F	BATH. P
Local Diseases (Continued) ...	20 15	14 8	6 5	4 6	12 5	18 14	20 20	9 20	15 17	44 53	18 39	12 24	4 20	133 169	35 38	7 20	21 19	196	246	442
6 Diseases of Lymphatic System. ...	...	...	1	...	...	...	...	...	...	...	1	...	...	1	1	...	...	2	...	2
7. Diseases of Urinary System.																				
Nephritis	...	1	...	1	1 1	1	2 1	...	1	...	1	...	...	5	2	...	2 1	7	3	10
Bright's Diseases, Albuminuria ...	...	...	...	...	...	2	2 1	3	1 3	3 2	1	4	1	8 9	1 1	1	...	9	11	20
Disease of Bladder or of Prostate ...	...	...	...	...	...	...	...	...	2	1 1	...	1 1	...	1 1	1	1	2	4	2	6
8. Diseases of Reproductive System.																				
Organs of Generation	. .	...	...	...	...	1	...	...	...	...	...	...	..	1	...	...	...	...	1	1
Parturition	...	...	...	...	2	...	...	...	...	...	...	...	...	1	1	...	...	...	2	2
Accidents of Childbirth	3	...	...	...	1	1	...	...	...	...	...	..	...	2	3	...	...	3	2	5
Uterine Hemorrhage (Abortion) ...	...	...	...	...	...	1	...	..	...	...	...	...	...	1	...	...	...	...	1	1
9. Diseases of Locomotive System.																				
Arthritis (Rheumatic)	...	...	...	...	...	...	...	1	...	...	...	...	1	1	...	...	1	1	1	2
Perineal Abscess	...	...	...	...	...	...	...	1	...	..	...	...	...	...	1	..	...	1	...	1
10. Diseases of Integumentary System	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	1	1
	23 15	15 8	7 5	4 7	13 9	21 17	24 22	10 24	19 17	48 57	20 40	13 29	6 20	149 185	42 42	7 22	25 21	223	270	493
VII. Deaths from Violence.																				
1. Accident or Negligence (Burns)	...	1	1	...	...	..	...	...	...	...	...	...	...	. 1	...	...	1	...	2	2
Fractures and Contusions	1	...	...	...	2	2 1	2 2	2	1	1	1 1	1	.	5 4	2 1	...	4 1	11	6	17
Drowning	...	1	2	1	...	..	...	...	...	..	...	...	...	2	1	...	1	3	1	4
Suffocation	1	...	...	...	...	...	...	...	...	...	..	...	...	...	...	1	...	1	..	1
Swallowing	1	.	..	...	...	...	...	...	...	...	...	...	. .	...	1	...	...	1	...	1
Shock from falling into river ...	...	...	...	...	...	. .	...	...	...	...	...	1	...	...	...	...	1	1	...	1
2. Suicide.																				
Cut, Poison, Drowning and Hanging	..	...	...	...	...	1	...	2	...	1	1	..	...	3	2	...	...	5	...	5
	3	2	2 1	1	2	3 1	2 2	4	1	1 1	2 1	1 1	...	10 5	5 2	1	6 2	22	9	31
VIII. Deaths from Ill-Defined and not Specified Causes.																				
Debility, Atrophy, Inanition ...	10 3	...	...	...	...	1	...	...	...	...	..	...	1	7 4	1 2	1	1	11	4	15
Hemorrhage	...	...	...	...	...	...	1 1	1	...	...	...	...	...	1	2	...	...	1	2	3
	10 3	...	...	...	...	1	1 1	1	...	...	...	...	1	8 4	1 2	2	1	12	6	18

M 3.

(A)

TABLE OF DEATHS during the year 1899, in the URBAN DISTRICT COUNCIL OF BEDLINGTONSHIRE DISTRICT, classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics: public institutions being shown as separate localities. (Columns for Population and Births are in Table B.)	Mortality from all causes, at subjoined Ages.								Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age.																					
									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
													Fevers.																	
	At all ages.	Under 1 year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards.		Smallpox.	Scarlatina.	Diphtheria	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis Pneumonia & Pleurisy	Heart Disease.	Influenza.	Injuries.	All Other Diseases.	Total.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
THE URBAN DISTRICT OF BEDLINGTONSHIRE.	401	170	45	18	23	68	77	Under 5		1										4	9	61		3	36	1		5	95	215
								5 upwds.		1	1			7			1		1			4	1	16	21	39	4	7	83	186
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
								Under 5																						
								5 upwds.																						
Totals	401	170	45	18	23	68	77	Under 5		1										4	9	61		3	36	1		5	95	215
								5 upwds.		1	1			7			1		1			4	1	16	21	39	4	7	83	186

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Deaths occurring outside the district among persons belonging thereto.								Under 5																						
								5 upwds.																						
Deaths occurring within the district among persons not belonging thereto.								Under 5																						
								5 upwds.																						

Area and Population of the District or Division to which this Return relates.

Area in Acres, 8435½.

Population (Last Census), 16764.

Population (Estimated to middle of 1899), 18000.

Death Rates.	General, 22	per 1000 Population estimated to middle of 1899.
	Infant (under one year of age), 229	per 1000 Births Registered.

In recording the facts under the various headings of Tables A and B, attention has been given to the notes endorsed on the Tables.

DANIEL CARMICHAEL, *Medical Officer of Health.*

January 30th, 1900.

(B) TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1899, in the BEDLINGTONSHIRE URBAN DISTRICT; classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics: public institutions being shown as separate localities. (a)	Population at all Ages. Last Census. (b)	Population at all Ages. Estimated to middle of 1899. (c)	Registered Births. (d)	Aged under 5 or over 5. (e)	New Cases: 1 Smallpox.	2 Scarlatina.	3 Diphtheria	4 Membranous Croup.	Fevers. 5 Typhus.	6 Enteric or Typhoid.	7 Continued	8 Relapsing	9 Puerperal	10 Cholera.	11 Erysipelas.	12 Influenza	13 Measles.	Removed to Isolation Hospital: 1 Smallpox.	2 Scarlatina.	3 Diphtheria	4 Membranous Croup.	Fevers. 5 Typhus.	6 Enteric or Typhoid.	7 Continued	8 Relapsing	9 Puerperal	10 Cholera.	11 Erysipelas.	12	13
				Under 5																										
				5 upwds.																										
				Under 5																										
				5 upwds.																										
THE BEDLINGTONSHIRE URBAN DISTRICT.	16764	18000	741	Under 5		12				2					2	50	50													
				5 upwds.		1	1			20			1		3	8	240						3							
				Under 5																										
				5 upwds.																										
				Under 5																										
				5 upwds.																										
				Under 5																										
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				Under 5																										
				5 upwds.																										
				Under 5																										
				5 upwds.																										
Totals	16764	18000	741	Under 5		12				2					2	50	50													
				5 upwds.		1	1			20			1		3	8	240						3							

State here whether "Notification of Infectious Disease" is compulsory in the district........... Since when?..................... ...... Besides the above-mentioned Diseases, insert in the columns with blank headings the names of any other diseases that are notifiable in the District, and fill the columns accordingly. State here the name of the Isolation Hospital used by the sick of the District Mark (H) the Locality in which such Hospital is situated; of if not within the District, state where it is situated.............. .... The Act was only enforced January 1, 1900.